FINANCING **ASEAN** CONNECTIVITY

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Foreword

In line with the globalisation trend, it becomes inevitable for the South East Asian economies to prepare themselves to move towards the path of a more border-less and well-connected world. Evidence has shown that countries can gain a lot from internationalisation, especially from trade, knowledge and information exchanges, and flows of people and goods. One of the key targets of ASEAN in achieving a dynamic, vibrant, globally connected and strong region is to fully realise ASEAN Connectivity which consists of three pillars, namely, physical connectivity, people-to-people connectivity, and institutional connectivity. Physical connectivity is especially important because it is not only a means to connect places in South East Asia but is also vital to support people-to-people and institutional connectivity. This is documented and highlighted in several leading studies and reports, in particular, the Master Plan on ASEAN Connectivity (MPAC) and the Comprehensive Asia Development Plan (CADP).

To realise the MPAC, the region needs to improve and accelerate several aspects, including financing and coordination. Given the situation where there is a lack of public funds to finance infrastructure development, calls have been made in various ASEAN countries for an increased role of the private sector. One of the popular schemes is the Public Private Partnership (PPP) model. Lack of financing is one of the most common problems causing delays in infrastructure development and is closely linked with other decisive factors like the regulatory framework, institutional settings and market structure. Searching for solutions to address this problem will eventually help in resolving other interlocking obstacles. Thus, at the regional level, it is important to perform stronger, more efficient and more effective coordination and cooperation, especially in developing cross-border infrastructure.

In this regard, the ASEAN Connectivity Coordinating Committee (ACCC) has commissioned the Economic Research Institute for ASEAN and East Asia (ERIA), which has been a perennial supporter of ASEAN Connectivity and has been deeply involved in the preparation of the MPAC and the CADP,

to conduct a study on financing modalities in South East Asia to accelerate the realisation of the MPAC. For this study, ERIA set up a team composed of 13 scholars and experts. This report titled "Financing ASEAN Connectivity" is the final output of their hard work and commitment.

This report is important because it provides a comprehensive picture of the infrastructure situation and policy in ten ASEAN Member States (AMSs) and gives an analysis of fundamental problems. It also presents principles of PPP policy that recognize the uniqueness of South East Asia and thereupon offers recommendations for concrete actions.

In particular, the report notes that different stages of infrastructure policy, financing method, and financial capacity in the AMSs should be recognised as unique features. It also takes into account innovative ways of financing in search for specific modalities that will suit specific AMSs. Therefore, the key to accelerating PPP development in South East Asia is to apply innovative financing without jeopardizing the economy.

Concrete steps must be taken by ASEAN leaders to realise better connectivity in the region. There are identified challenges ahead, especially in expanding the markets (including financial and capital markets, construction market, and related services markets), improving business climate, working from planning to implementation stages, realising cross-border infrastructure, and getting potential, yet unutilised, funds. To be realistic, many of the above can only be addressed in the medium term period; and while efforts to address them must be done, short-term innovations may be needed to improvise and provide factual immediate solutions. These can be answered through appropriate regulatory framework and consistent law enforcement, systematic capacity building, efficient and effective institutionalised working mechanisms, and strengthened regional coordination to harmonise cross-border cooperation.

The list of tasks to do is long but the region can support one another, started by having regular and focused communication and interaction in an equal forum. It is for this reason that the report's major recommendation is to establish the ASEAN PPP Forum. To accompany this and support the

implementation of PPP, a set of customized PPP Guidelines, or ASEAN PPP Guidelines, would be needed.

Finally, this report could not have been completed without the valuable support from the ASEAN Secretariat, the active contributions from the members of the ACCC and the AMS government officials, as well as the World Bank Infrastructure Policy in Singapore. ERIA extends its highest appreciation to everyone who has been involved in this study. It also sincerely hopes that this report can be a valuable contribution in the field of infrastructure development in South East Asia.

Jakarta, November 2014

Hidetoshi Nishimura

Executive Director, ERIA

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List of Abbreviation

AAT	Airports Authority of Thailand
ABMI	ASEAN Bond Market Initiative
ADB	Asian Development Bank
ADF	Asian Development Fund
AEC	ASEAN Economic Community
AFAB	Authority of the Freeport Area of Bataan
AFD	Agence Française de Développement (French Development Agency)
AIF	ASEAN Infrastructure Fund
AMS	ASEAN Member States
AOT	Airport of Thailand Company Limited
APAEC	ASEAN Plan of Action for Energy Cooperation
APECO	Aurora Pacific Economic Zone and Freeport
ARL	Airport Rail Link Project
ASEAN	Association of South East Asian Nations
BCDA	Bases Conversion and Development Authority, Philippines
BIMP-EAGA	Brunei Darussalam, Indonesia, Malaysia and Philippine — East ASEAN Growth Area
BIR	Bureau of Internal Revenue
BLT	Build-Lease-Transfer
BMTA	Bangkok Mass Transit Authority
BOC	Bureau of Customs
BOLT	Build-Own-Lease-Transfer
BOO	Build-Operate-Own
BOT	Build-Operate-Transfer
BROT	Build-Rehabilitate-Operate-Transfer
BRT	Bus Rapid Transport
BSP	Bangko Sentral ng Pilipinas
BT	Build-Transfer
BTO	Build-Transfer-Operate
BTS	Bangkok Mass Transit System (Skytrain)
BU	Business Units
CA	Contract-Add

CAAP	Civil Aviation Authority of the Philippines
CAAS	Civil Aviation Authority of Singapore
CAG	Changi Airport Group
CAO	Contract-Add-Operate
CAOM	Contract-Add-Operate-Maintain
CBD	Central Business District
CBM	Central Bank of Myanmar
CDC	Clark Development Corporation
CDC	Council for Development of Cambodia
CFS	Container Freight Station
CIAC	Clark International Airport Corporation
CIB	Cambodia Investment Board
CLMV	Cambodia, Laos, Myanmar, Vietnam
CPA	Cebu Port Authority
CRDB	Cambodia Reconstruction and Development Board
CSO	Central Statistical Organization, Myanmar
CSX	Cambodia Security and Exchange
CTF	Clean Technology Fund, Philippines
DA-NIA	Department of Agriculture, National Irrigation Administrator, Philippines
DA-PFDA	Department of Agriculture, Fisheries Development Authority, Philippines
DA-SRA	Department of Agriculture-Sugar Regulatory Administration
DBM	Department of Budget and Management
DBOM	Design-Build-Operate-Maintain
DCA	Department of Civil Aviation, Myanmar
DENR	Department of Environment and Natural Resources, Philippines
DepEd	Department of Education, Philippines
DILG	Department of the Interior and Local Government, Philippines
DIR	Daiwa Institute of Research
DOE	Department of Energy, Philippines
DOH	Department of Highways, Thailand
DOT	Department of Tourism
DPWH	Department of Public Works and Highways
DRR	Department of Rural Roads, Thailand

DWT	Deadweight tonnage
EAS	East Asia Summit (ASEAN+8)
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
ECA	Energy Conversion Agreement
EDCF	Economic Development Cooperation Fund
EDL	Electricité du Laos
EGAT	Electricity Generating Authority of Thailand
EMB	Environmental Management Bureau, Philippines
EPF	Employees Provident Fund
EPU	Economic Planning Unit, Malaysia
ERIA	Economic Research Institute for ASEAN and East Asia
ERL	Express Rail Link Sdn Bhd
ESB	Enhanced Single Buyer
ETP	Economic Transformation Programme
EUR	European Euro
EVN	Electricity Corporation of Vietnam
EWEC	East-West Economic Corridor
EXAT	Expressway Authority of Thailand
FDI	Foreign Direct Investment
FELDA	Federal Land Development Authority, Malaysia
FIL	Foreign Investment Law
FS	Feasibility Studies
GAA	General Appropriations Act in Philippines
GCI	Global Competitiveness Index
GDI	Gross Domestic Income
GDP	Gross Domestic Product
GIS	Geographic Information System
GLC	Government-linked companies (also see: SOE)
GMS	Greater Mekong Subregion
GOCC	Government-Owned and Controlled Corporations
GSIS	Government Service and Insurance System
GSSC	Greater Sulu Sulawesi Corridor
GT	Giga Tonnes
GTP	Government Transformation Programme

GTZ / GIZ	Deutsche Gesellschaft für Technische Zusammenarbeit GmbH / Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GW	Giga Watt
GWh	Giga-watt hour
Ha	Hectares
HAPUA	Heads of ASEAN Power Utilities/Authorities
HCMC	Ho Chi Minh City
HM	His Majesty
H UDCC	Housing and Urban Development Coordinating Council
IBRD	International Bank for Reconstruction and Development
ICD	Inland Container Deport
ICOR	Incremental Capital Output Ratio
ICT	Information and Communication Technologies
IDA	International Development Association
IDA	Info-Comm Development Authority, Singapore
ID R	Indonesia Rupiah
I EA	International Energy Agency
I EIA	Initial Environmental Impact Assessment
IFAD	International Fund for Agricultural Development
I IGF	Indonesia Infrastructure Guarantee Fund
IMF	International Monetary Fund
IMO	Infrastructure Maintenance and Operation
IMT-GT	Indonesia, Malaysia, and Thailand – Growth Triangle
I PP	Independent Power Producer
I RR	Implementing Rules and Regulations
IT	Information Technology
ITC	Information. technology, and communications
ITT	BTS Integrated Transport Terminal Bandar Tasik Selatan
IUTT	Inter Urban Transport Terminals
JAFTA	Japan-ASEAN Fund for the Technical Assistance
JBIC	Japan Bank for International Cooperation
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency
JORR	Jakarta Outer Ring Road
JPY	Japan Yen

JTC	Jurong Town Corporation
JV	Joint Venture
Kg/m	Kilogram/meter
Km	Kilometer
Km/h	Kilometer/hour
KOICA	Korea International Cooperation Agency
KPI	Key Performance Indicator
KRX	Korea Exchange
KTM	Keretapi Tanah Melayu
KV	Kilovolt
KW	Kilowatt
LDC	Less-Developed Country
LGU	Local Government Unit
LLDA	Laguna Lake Development Authority
LRSP	Lao Road Sector Project
LRT	Light Rapid Transit
LRTA	Light Rail Transit Authority
LTA	Land Transport Authority, Singapore
LTFRB	Land Transportation Franchising and Regulatory Board, Philippines
LTO	Land Transportation Office, Philippines
LWUA	Local Water Utilities Administration, Philippines
MARINA	Maritime Industry Authority
MCA	Millennium Challenge Account
MCC	Millennium Challenge Corporation
MCIAA	Mactan Cebu International Airport Authority
MEA	Electricity Generating Authority of Thailand (EGAT)
MEB	Myanma Economic Bank
MEWR	Ministry of Environment and Water Resources
MGS	Malaysian Government Securities
MIP	Myanmar Industrial Port
MITT	Myanmar International Terminals Thilawa
MIWT	Myanmar Inland Water Transport
MKRA	Ministerial Key Results Areas
MMDA	Metro Manila Development Authority
MOF	Ministry of Finance
MOP	Ministry of Planning, Cambodia

MOT	Ministry of Transport
MOU	Memorandum of Understanding
MP3EI	The Master Plan for the Acceleration and Expansion of Indonesia's Economic Development
MPA	Maritime and Port Authorities of Singapore
MPI	Ministry of Planning and Investment, Vietnam
MPWT	Ministry of Public Works and Transport
MRD	Ministry of Rural Development, Cambodia
MRT	Mass Rapid Transportation
MRT3	Metro Rail Transit 3
MW	Megawatt
MWSS	Metropolitan Waterworks and Sewerage System, Philippines
NAIA	Ninoy Aquino International Airport Expressway
NCR	National Capital Region, Philippines
NDRRMC	National Disaster Risk Reduction and Management Council
NEA	National Electrification Administration
NEAC	National Economic Advisory Council
NEDA	National Economic Development Authority, Philippines
NEM	New Economic Mechanism, Laos
NESDB	National Economic and Social Development Board
NGPES	National Growth and Poverty Eradication Strategy
NH	National Highway
NKEA	National Key Economic Area
NKPI	National Key Performance Indicators
NLRC	National Labor Relations Commission, Philippines
NSCB	National Statistical Coordination Board
NSDP	National Strategic Development Plan, Cambodia
NSEDP	National Socio-Economic Development Plan of Laos
NSEW	North South East West Line of Singapore MRT
NSLP	Northrail-Southrail Linkage Project
NSSF	National Social Security Fund
NSWMC	National Solid Waste Management Commission, Philippines
OCS	Office of the Council of State
ODA	Official Development Assistance

OECD	Organisation for Economic Co-operation and Development
OM	Operate-Maintain
OTP	Office of Transport and Traffic Policy and Planning, Thailand
PAT	Port Authority of Thailand
PBC	Performance-Based Contracting
PCG	Philippine Coast Guard
PCOO	Presidential Communication Operations Office, Philippines
PDF	Project Development Facility
PDMF	Project Development and Monitoring Facility
PDP	Philippine Development Plan
PEA	Provincial Electricity Authority
PFI	Private Finance Initiative
PhilPost	Philippine Postal Corporation
PHIVOLCS	Philippine Institute of Volcanology and Seismology
PHRD	Program Human Resources Development of Japan
PIA	Projek Penyelenggaraan Infrastruktur Awam
PIAS	Projek Infrastruktur Asas
PINAI	Philippine Investment Alliance for Infrastructure
PIP	Public Investment Plan of Cambodia
PNR	Philippine National Railways
PPA	Power Purchase Agreement
PPA	Philippine Ports Authority
PPAS	Phnom Penh Autonomous Port
PPI	Private Partnership in Infrastructure
PPI	Public-Private Initiative
PPMC	Poro Point Management Corporation, subsidiary of BCDA Philippines
PPP	Public-Private Partnership
PPP	Purchasing Power Parity
PPTA	Project Preparatory Technical Assistance
PRC	People's Republic China
PRF	Poverty Reduction Fund
PRRC	Pasig River Rehabilitation Commission
PSA	Port of Singapore Authority
PSALM	Power Sector Assets & Liabilities Management

	Corporation, Philippines
PSO	Public Service Obligation
PSOD	Private Sector Operations Department of ADB
PSP	Private Sector Participation
PTNI	People's Television Network Inc, Philippines
PUB	Public Utilities Board, Singapore
PVN	Petro Vietnam
QIP	Qualified Investment Project
RA	Republic Act in Philippines
RAP	Resettlement Action Plan
RCR	Royal Cambodian Railways
RGC	Royal Government of Cambodia
RI	Retained Income
RISDA	Rubber Industry Smallholders Development Authority
RM	Ringgit Malaysia
RMF	Road Maintenance Fund
RMP	Road Maintenance Project
RONET	Road Network Evaluation Tools
ROO	Rehabilitate-Own-Operate
RORO	Roll-On Roll-Off
ROT	Rehabilitate-Operate-Transfer
ROW	Right of way
RPJMN	Rencana Pembangunan Jangka Menengah Nasional (Indonesia's Medium Term Development Plan)
RSP	Retail Service Provider
RTC	Rural Transformation Centres
RTP	Rural Transformation Programme
SDR	Special Drawing Rights
SECC	Security and Exchange Comission of Cambodia
SEPO	State Enterprise Policy Office
Sida	Swedish International Development Cooperation Agency
SKRL	Singapore-Kunming Rail Link
SNEC	Supreme National Economic Council
SOCB	State Own Commercial Bank
SOE	State-Owned Enterprise
SPAD	Suruhanjaya Pengangkutan Awam Darat (Land

	Public Transport Commission)
SPARK	Sungai Liang Industrial Park
SPP	Small Power Producer
SPV	Special Purpose Vehicles
SRT	State Railway of Thailand
SUN	Surat Utang Negara
SWFI	Sovereign Wealth Fund Institute
TAS	Telecommunications Authority of Singapore
TBD	To be determined
TDRI	Thailand Development Research Institute
TEMAN	National Agrobusiness Terminal
TEU	Twenty-foot Equivalent Unit (a standard size container)
TF	Trust Fund
TSE	Tokyo Stock Exchange
TWh	Terra Watt hour
UKAS	Unit Kerjasama Awam Swasta, Malaysia's PPP Unit
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UPT	Urban Public Transport
USD	United States Dollar
VGF	Viability Gap Fund
VICT	Vietnam International Container Terminals
VND	Vietnam Dong
VNR	Vietnam Railways
VSPP	Very Small Power Producer
WBEC	Western Borneo/Kalimantan Economic Corridor
WEF	World Economic Forum
WTO	World Trade Organization

Executive Summary

Country Fiscal Situation

1. The ASEAN member states have different levels of infrastructure policy, financing method, and financial capacity:
    a) Singapore and Brunei have abundant domestic financial resources to build infrastructure;
    b) Malaysia, Indonesia, Thailand, and the Philippines have been adopting Public-Private Partnership (PPP) programmes progressively to address financing gaps and tap the private sector's competency;
    c) Although PPP has not yet been formalised in Cambodia and Viet Nam, private sector participation has become increasingly important in their infrastructure development;
    d) Laos and Myanmar are still facing multiple challenges: lack of fiscal resources, low capacity, lack of regulatory framework, and challenging fiscal sustainability.
2. Five ASEAN countries—Indonesia, Malaysia, the Philippines, Singapore, and Thailand—share some common characteristics of a mature capital market. Such characteristics may include all or most of the following:
    a) A regulated banking sector with central bank oversight
    b) Public and private ownership of financial institutions
    c) Local currency bond issues in domestic and regional capital markets
    d) Services that include projects and conventional corporate finance
    e) The capacity to underwrite debt and particularly bond issues

f) Foreign exchange and interest rate hedging facilities, and financial intermediation services for syndicated debt with domestic and foreign financial institutions.

3. In the ASEAN, Malaysia, Indonesia, Singapore, and Thailand meet the criteria of mature capital markets but have only minor levels of infrastructure financing. In the present times, two of the pitfalls of domestically sourced infrastructure finance are when sovereign credit ratings drops and when differences between international and domestic interest rate settings widen.

Regulatory Framework

1. Indonesia, the Philippines, Thailand, and Viet Nam have issued specific regulations on PPP. On the other hand, Singapore, Malaysia, and Brunei have PPPs without having specific regulations. In Singapore, PPP is part of its Best Sourcing Framework, a policy that requires the public sector to market test its services and opt for the most efficient and effective way of procurements, including engaging its private sector. Singapore, Malaysia, and Brunei may not need to enact a special law on PPP as they already have a solid foundation of regulations as a basis for their PPP policy. Other countries in the ASEAN---i.e., Cambodia, Lao PDR, and Myanmar---have not yet developed a PPP system; thus, private sector participation is practiced without any specific PPP framework.

Potential Financial Sources

1. The potential financial sources in the region may be classified as: (a) domestic (owned financial sources): (b) predominantly government funded (in Brunei's case); (c) combination of government and private financing (Singapore); and (d) private sources (such as in Indonesia, Malaysia, the Philippines, and Thailand's cases). The role of the capital market is important as an intermediary or channel of funds.
2. Intra-ASEAN sources of financing: The potential is high for all members but still has limited channels.
3. Extra-ASEAN sources of financing: Potential is high especially from long-term funds that include pension funds, insurance funds, and

sovereign wealth funds. The problem, however, lies in how to attract the investment.

ASEAN PPP Direction

1. To move forward, PPP in the ASEAN should move towards improving and strengthening several aspects of its regulatory framework, process, and capacity building, as well as private sector development; effectively mobilising financial resources; and enhancing regional coordination.
2. There are other areas that need more attention, including how to (a) increase certainty and confidence of potential investors, especially those resulting from regulatory framework; (b) manage optimal risk-sharing arrangements between public and private sectors; (c) provide well-prepared and sustained projects; (d) maintain an effective connection between the functional PPP unit and the PPP centre in the region; (e) systematise capacity building and effective evaluation; as well as (f) open and channel funds from larger financial resources.
3. The articulated direction for PPP development (or PPP Direction) flags the important issues to be addressed in developing PPP in the region. Differences in development and policy stages across member states may pose a challenge to the adoption of uniform PPP tools as normally practised in advanced economies. The ERIA, thus, will start by providing PPP guidelines tailored for ASEAN economies and highlight the uniqueness of the region. These special characteristics are recognised as "PPP in an ASEAN Way".

PPP in an ASEAN Way

1. The PPP in an ASEAN Way has three main features: (a) It recognises the different stages of the PPP policy development; (b) It has special support for cross-border connectivity initiatives; and (c) It supports the involvement of the domestic private sector.
2. The PPP policy development has two broad categories of transaction:
    a) *Lite PPP* - Policy and implementation frameworks that expedite projects and reduce transaction costs. Lite PPP is suitable for small- to medium-size projects (US$20 million to US$50 million) that feature a state availability payment model (for example, education and health services), and does not involve

currency mismatch risks.

b) *Full PPP* - Projects of over US$50 million in value that require a comprehensive policy framework to address problems of currency mismatch, design and construction complexity, demand risks and different stakeholders (e.g., the government, investors and sponsors, affected parties).

3. There is a need for policy provisions that recognise regulatory enhancement for complex projects so to insulate them from implementation delays in, for example, environmental approvals, regulatory exemptions or normal procurement procedures. However, an *ad hoc* approach to large and complex projects should not eliminate the need for wider regulatory reform so as to improve the attractiveness of doing business in the country, to support foreign direct investment (FDI) for PPP projects, to improve governance and to reduce uncertainty.

4. The concept PPP in an ASEAN Way looks at infrastructure development in the region as an integral part of the cross-border connectivity and not as independent and separate projects. That is, more cross-border collaboration among member countries enhances regional connectivity.

5. Also, PPP in an ASEAN Way supports the involvement of the domestic private sector. Domestic private companies should in fact play an important role, where benefits cover employment, technology transfer, local currency, local sub-contractors, domestic insurance and financial services, and opportunities for international collaboration.

6. One of the first steps to take is to provide ASEAN member states with suitable PPP guidelines, which would be derived from the PPP concept (i.e., PPP in an ASEAN Way) and PPP Direction. This document should describe the characteristics of PPP "in an ASEAN way", and the elements of the PPP framework whose components are tailored toward the ASEAN characteristics.

7. To be able to devise practical and workable PPP guidelines and supporting technical documents as well as to keep all ASEAN member states aligned about the subject, there should be constant input and feedback from stakeholders via the PPP Forum. The PPP Forum should ideally be run by the ASEAN Secretariat (or the *ASEAN Connectivity Coordinating Committee*) with active participation from relevant

ministries/institutions responsible for infrastructure or PPP projects in each country. The ERIA may facilitate the forum.

8. While the PPP Forum works to gather ideas, small and limited support can be extended in the forms of technical assistance and capacity building. Such move would serve various purposes such as: (a) to provide real support to the member countries that need it urgently; (b) to be able to assess the real capacity to support PPP once the PPP Centre of Excellence is established; (c) to showcase that the ASEAN member states are serious about properly implementing PPP in infrastructure development; and (d) to identify potential stakeholders who can help in PPP development within the region.

9. The PPP Forum, PPP guidelines, and member states' support for capacity building and technical assistance will increase the demand for more effective regional cooperation. Such efforts can then be institutionalised once the PPP Centre of Excellence is established. The centre should exist to improve the development of PPP in the region and increase the utilisation of financial resources.

10. In the implementation of its mandate, the centre shall further consider past lessons learned on PPP, the existing PPP progress in the region, as well as expectations and future targets. It should work closely with PPP units in the ASEAN member states. For countries that have yet to establish their own PPP unit, it is strongly advised that they do so at the earliest. A well-designed and functional PPP unit can significantly improve PPP implementation in a country. However, designing an effective PPP unit is not easy as the country needs to consider at least these following aspects: (a) governmental system; (b) the degree of authority to advise, decide and approve a PPP project; (c) potential conflict of interests; and (d) budgetary support.

11. The Centre of Excellence is neither a lender nor a donor. Its functions are: (a) to support the establishment and development of a PPP unit in each country; (b) to design a systemised capacity building scheme for the requesting country; (c) to give advice and technical assistance to the PPP unit; (d) to accumulate and disseminate PPP knowledge and good practices across ASEAN member states; and (e) to assist countries and external parties (investors, donors, sponsors) in realising PPPs.

Part I
Resources Mobilisation, Financing Options, and PPP Direction for ASEAN Member States

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Overview of Potential Resources Available for ASEAN

1.1.Potential Resources

ASEAN countries have access to a range of international, regional and domestic potential sources of finance for infrastructure projects. Infrastructure as an asset class possesses a number of distinguishing characteristics that require a special approach to get financing. In general, infrastructure financing has following characteristics:

- Investment is capital intensive with high sunk-costs
- Investment is highly leveraged
- Dominated by greenfield projects
- Capital investment is long-term
- Revenue streams are stable and generally indexed to inflation
- Debt servicing obligations are matched to project cash flows
- Lender security is generally limited to the bundle of contracts that make up the investment agreement
- Output has low price elasticity
- The relationship between the parties is usually regulated by contract.

Project finance transactions have always spanned a wide variety of financial products and services offered by a number of public and private investors.

What investments have in common is the wide use of long-term limited recourse loans or bonds amounting to around 75-85% of total capital requirement. Project finance also requires complex documentation, which attracts high transaction costs. For projects over USD100 million, debt may be syndicated over a number of financial institutions and structured in several trenches denominated in different currencies, interest rates, maturities and security rankings (in the event of the winding-up of the debtor entity). Infrastructure finance also requires the services of financial intermediaries and advisers, underwriters, sovereign and political risk insurers and credit enhancement.

Infrastructure finance for loans less than USD 100 million generally requires the same level of documentation as larger transactions but lacks the economies of scale, which increases transaction costs as a percentage of total project costs.

The institutional framework required to support local capital market capacity for infrastructure finance is significant, and a considerable challenge for nations with domestic capital markets in the early stages of development.

Shorter-term corporate finance (terms of up to 7 years) may be used for infrastructure finance but is not an optimal solution, mainly because of the potential mismatches between debt servicing requirements and the cash flows of the investment. The risks for borrowers include the need for frequent refinancing, uncertainty relating to transaction costs, the availability and cost of debt at the time the refinancing takes place, and corporate debt providers' preference for full recourse security and early loan principal reduction.

Bond financing is also an option because of the flexibility it offers to structure a mix of maturities, currencies and interest rates matched to the cash flows of the asset being financed. As a partial securitisation of project cash flows, bonds may also be traded in official capital markets or privately, thereby satisfying the liquidity requirement of portfolio bond investors. Bonds also attract a wider group of investors that may include domestic and international financial and non-financial institutions, pension funds, insurance companies and investment trusts. The bonds gain wider market acceptance, particularly by investment trusts, if they are rated 'investment

grade' by a credit rating agency.

Infrastructure bonds issued for PPP projects in Australia, Britain and Canada have met steady demand from institutional investors, pension and sovereign wealth funds keen to secure portfolio diversification and match their long-dated liabilities with assets of similar tenor. This institutional appetite for infrastructure bonds occurs at a time when traditional bank lenders are reducing their participation in project finance syndications in response to the new Basel III capital adequacy requirements.

Recent developments in the international economy have also had a significant impact on the availability of infrastructure finance. The re-pricing of risk, the demise of the monoline[1] credit insurance market and low securitisation activity has reduced the attraction of unitised infrastructure debt to institutional investors. The main sources of future equity and debt investment are the international pension funds seeking to diversity their assets by asset class and regional distribution. Bilateral and multilateral development agencies also occupy a central role with grant assistance, cross-border and regional program initiatives, political risk insurance, capacity building, and advisory and supporting financial services to assist the financing of PPP projects within ASEAN.

1.1.1. Domestic

The significant resources needed to meet the infrastructure gap in ASEAN countries cannot be met by member countries alone (ADB, 2011). Domestic capital markets provide limited opportunities to source project finance for infrastructure projects although domestic capital markets in East Asia have experienced significant development in the past decade. The strongest growth has been in corporate bond markets which stood at USD2.8 trillion in 2012 and around 24% of GDP (from USD510 billion and 16% of GDP in 2000). The largest ASEAN markets for corporate bond issues in March 2013 were Malaysia, Singapore, and Thailand. Corporate bond markets have a number of important economic functions. For investors, they offer portfolio diversification and long-term fixed interest returns. For issuers, they enable firms to better match assets and liabilities, reduce refinancing risk, generally lower the cost of capital and limit exposure to foreign exchange risk (Hack

[1] A business that focuses on operating in one specific financial area

and Close, 2013). Significant progress has also been made in market infrastructure with market regulators strengthening financial stability and encouraging wider use of domestic currency issues since the financial crises of 2007- 08.

Corporate bonds may be secured on the assets of the company or issued as unsecured notes, which are generally short-term securities offered at a higher rate of interest. Two difficulties with corporate bonds are the mismatch between maturities of 10-12 years and the 20-30 year terms of PPP contracts, and the impact of secured long-term bond issues on corporate balance sheets. Nevertheless, the maturity and growth in East Asian bond markets provide opportunities for new methods of infrastructure and PPP finance that will be developed in response to the changes in global finance architecture and regulation following the crises of 2007-08.

Among ASEAN member states, Malaysia, Indonesia, Singapore and Thailand meet the criteria of mature capital markets but originate only minor levels of infrastructure finance (Izaguirre and Kulkarni, 2011). Disadvantages of domestically sourced infrastructure finance at the present time include lowering sovereign credit ratings and differences between international and domestic interest rate settings. In July 2013, the nominal 90 day London Interbank Offer Rate (LIBOR) is trading at a significant discount to domestic interest rates in ASEAN countries, and the prospect of a short-term tightening of monetary policy in Thailand, Malaysia and the Philippines is likely to increase the difference in the short term.

Other sources of finance offered in domestic markets include short to medium-term corporate or term bank finance and plant leasing. In developing countries around 65% of infrastructure finance is provided by the private sector and in East Asia, the level is around 85% (Izaguirre and Kulkarni, 2011).

Domestic capital markets play an important role in developing and transition economies by facilitating local firm participation in bids, increasing the depth and variety of bid markets and reducing bid costs.

Five countries within ASEAN share the common characteristics of a mature capital market: Indonesia, Malaysia, the Philippines, Singapore and Thailand. The characteristics of a capital market for these purposes may include all or

most of the following:

- A regulated banking sector with central bank oversight
- Public and private ownership of financial institutions
- Local currency bond issues in domestic and regional capital markets
- Services that include project and conventional corporate finance
- The capacity to underwrite debt and particularly bond issues
- Foreign exchange and interest rate hedging facilities, and financial intermediation services for syndicated debt with domestic and foreign financial institutions.

Mature capital markets are competitive and participating in a local or regional securities exchange for equity and bond trading.

The capacity of the domestic banking sector to provide infrastructure finance may also be affected by the level of domestic savings, macroeconomic policies, monetary policy, particularly interest rates, currency and exchange rate management, and policies on trade and foreign direct investment. The contribution of capital market development to economic progress assumes greater importance with efficiency-driven economies such as Indonesia, Malaysia, Thailand, the Philippines and Brunei (World Economic Forum, 2012).

The rest of ASEAN countries (Brunei, Cambodia, Lao PDR, Myanmar, Viet Nam) have capital markets in transition and are more reliant on foreign-sourced debt, mezzanine and equity capital and financial services. This group of countries will take longer time to develop the depth and diversity of financial services needed for sustained capital market development. Viet Nam participates in the Asian Bond Markets Initiative (ABM I) although its bond maturities are short to medium term. Brunei Darussalam has less need for a domestic capital market with no state debt and limited formal market demand for financial services.

1.1.2. Intra-ASEAN

There are advantages in greater connectivity between the capital markets in ASEAN member nations. Research points to the advantages of greater integration within ASEAN capital markets (Kusari and Sanusi, 2012) and evidence of co-movement of short-term domestic interest rates between

ASEAN+5 member countries (Mohan and Nandwa, 2009). Indonesia, Malaysia, Singapore and Thailand have the capacity to foster a specialist infrastructure finance capability and create specialist financial products such as indexed annuities and tax-preferred bonds to raise capital for infrastructure. There has, however, been little interest to date in intra-ASEAN project lending or contributions to pooled investment vehicles.

An important innovation has been the creation of the ASEAN Infrastructure Fund (AIF) in 2011 to provide additional financing for improved infrastructure and support wider use of the PPP procurement model within ASEAN. Because AIF is newly established and acting as a co-financier to ADB's selected projects, its role is still limited. Further initiatives should also be considered including the European Investment Bank's mezzanine finance pilot program, which offers credit enhancement to senior debt providers at relatively small risk for the sponsoring institution (EIB, 2012). To develop regional infrastructure financial market, the region does not only need the investors and borrowers, but also the complementary institutions, such as reinsurance companies, rating agencies, etc. The Asian Infrastructure Fund, the Asian Bond Market and Asian Bond Market Initiative are examined in further detail below.

In recent years, the majority of ASEAN infrastructure finance has been sourced internationally from private investors and lenders. Dependence on international sourced of finance has, however, exposed ASEAN member nations to the instability and uncertainties of global financial markets.

1.1.3. Extra-ASEAN

As noted, international capital markets have provided most infrastructure finance within ASEAN in recent decades. The greatest share of this has taken the form of traditional project finance, term debt and, to a much lesser extent, mezzanine bonds issued by private firms. However, the total requirement of USD13.5 billion in 2012 accounted for only 16% of that provided to the Asia Pacific region (excluding Japan) (Austrade, 2013). Other providers of finance include institutional investors and pension funds, export credit agencies, and multilateral and bilateral development agencies. In 2011-12, most ASEAN investment went to the energy and transport sectors, primarily sourced in Japan and Europe (PricewaterhouseCoopers, 2012). However, the new capital adequacy requirement for banks under

Basel III contributed to the 13% decline in international project finance flows in 2011-12, a trend that began during the global recession of 2007-08 (Eurofi, 2012).

1.2. Integration with Asian Bond Markets Initiative

ASEAN has progressively created a framework for closer capital market integration since 2000 to develop the infrastructure needed for cross-border collaboration between the various capital markets in ASEAN. The objective of the initiative was to achieve greater liberalisation and harmonisation of member capital markets and to facilitate the issue of long-term, local currency-denominated debt to improve the competitiveness of ASEAN capital markets in a wider regional and global context (ERIA, 2012). Two recent initiatives in the past decade designed to develop ASEAN market depth are the Asia Bond Fund (ABF) and the Asian Bond Market Initiative (ABMI).

The ABF was created in 2003 as an initiative of the Bank for International Settlements (BIS) to foster regional cooperation, promote intra-regional investment and capital market development. The fund had an initial focus on the demand side and sought to establish diversity, depth and benchmark maturities for investors. This was followed by a second fund, ABF 2 in 2005 with a subscription of around USD2 billion. and both funds invest in eight local currency bond markets. The funds are managed by the BIS and had an initial capital of US1 billion. The ABF has achieved its early objectives including withholding tax reforms, the liberalisation of foreign exchange rules and reduction in cross-border settlement risk. Nevertheless, challenges remain including improvement in both debt and liquidity with the development of repo markets, the adoption of derivatives trading and opening the market to non-resident investors (Bank for International Settlements, 2011).

The ABM I was introduced in 2005 by ASEAN+3 with the support of the Asian Development Bank to create a market to harness the region's strong domestic savings, facilitate investment in local enterprises and help manage regional currency and tenor issues. There are eight index funds trading in the market including Indonesia, Malaysia, the Philippines, Thailand, Singapore

and Viet Nam. In March 2013, outstanding Local Currency (LCY) bonds stood at USD6,600 billion of which around 36% were non-government securities, an increase from 29% in 2007. The ABMI in its early years adopted a supply side perspective with the objective of improving depth and diversification of offers. The market doubled in size between 2007 and 2013. There is wide variation in maturities and yields between the funds and a summary of recent performance indicators (yields, tenors and short-term domestic interest rates) is set out at Table I.1. The value of non-government bonds with maturities of 5 years or longer account for around half the bonds on issue in Malaysia, the Philippines, Singapore and Thailand. The Viet Nam fund has no private bonds with a maturity of 10 years or longer although around 47% have maturities of 5 to 10 years (ADB, 2007) .

Table I.1. Asian Bond Market Initiative

	Domestic Interest Rates %[a]	Yield % 10 Yr Govt Bonds[b]	Average Fund Tenors %				Private Bonds % >10 Yrs
			1-3 Yrs	3-5 Yrs	5-10 Yrs	>10 Yrs	
Indonesia	6.50	7.58	34	40	26	0	0
Malaysia	3.00	3.96	17	15	36	32	33
Philippines	3.50	3.43	21	22	54	3	2
Singapore	0.03	2.23	20	21	38	21	21
Thailand	2.50	3.90	33	20	38	9	9

Note :[a] Short-term rate June 2013
[b] ABMI Market Watch August 2013
Source: ADB ABMI Monitor (August 2013)

Recent ABMI initiatives include a credit guarantee and investment facility established in 2010 to provide credit enhancement for corporate bonds denominated in local currency which has improved access for qualifying investment grade infrastructure bonds (Kurihara, 2012). The future development of the ABM I market includes a strategy to increase the volume of infrastructure securities in future years which will offer several advantages unavailable with foreign-sourced project finance, including better diversification of project risk and investor liquidity. Asian bond funds face several challenges. For non-government bonds, market makers believe that liquidity could be improved with greater transparency, investor diversity and foreign exchange regulations, better market access and transaction funding (ADB 2013).

1.3.Utilisation of Financial Resources

Most finance for projects in ASEAN is sourced from foreign jurisdictions, and the use of domestic and intra-ASEAN financial resources is relatively low. The region accounts for around 29% of the Asia Pacific's infrastructure investment requirement but receives only 16% of private infrastructure investment (Austrade, 2013). With the exception of Malaysia and Singapore, ASEAN companies have not made wide use of long-dated bonds. Closer integration of ASEAN capital markets and a decline in project finance investment flows from bank lenders may see a change in this position in future years.

1.3.1. Key Factors

The key factors contributing to greater resource utilisation in ASEAN include the following:

- The staged integration of ASEAN capital markets, particularly with the liberalisation and homogenisation of market regulations
- Greater focus on long-term investment horizons, particularly on the supply side of the market
- Wider use of non-government bond issues in various configurations of interest rate, maturity and currency
- The adoption of common infrastructure procurement policy principles with a view to improving investor and market acceptance of securitised infrastructure debt
- Communications — ASEAN economies have a good story to tell global investors and with the change in infrastructure finance supply moving away from traditional banking sources to portfolio institutional investors and pension funds the opportunity exists for the region to promote itself more widely to this community
- The introduction of a mezzanine finance support mechanism to enhance the credit standing of private bond issues as explained in greater detail below.

The obstacles to greater resource utilisation for infrastructure projects include:

- Poor risk allocation practices that give effect to wholesale rather than optimal risk allocation in infrastructure projects. The allocation of project risk to the bidding consortium that it is in the position to best manage implies that it will do so at lowest cost. Optimal risk transfer reduces the average cost of capital for consortia and minimises the risk of project failure

- The adoption of common principles for infrastructure projects that require the life cycle costing of the investment and risk weighting of the procurement options. The benchmarking of these two key performance indictors improves the "bankability" of infrastructure transactions.

The European Investment Bank (EIB) Mezzanine Bond Facility

The European Investment Bank introduced a pilot program for a new credit support facility designed to enhance the credit standing of PPP transactions and attract senior debt providers back to this asset class. The EIB Fund offers either a loan or guarantee of the mezzanine or subordinated debt component of project finance. The EIB engages with the bid market prior to lodgement of bids and works with bidding consortia to structure a mezzanine facility on a case-by-case basis, which is supported by the EIB's strong credit rating. Senior lenders are assured by the certainty of repayment of the mezzanine facility, which is in a subordinated security position and first to be called in the event of project or consortium failure. Mezzanine finance typically accounts for 15-20% of PPP project debt and the mezzanine finance/guarantee effectively enhances the overall credit standing of the transaction. For its pilot program, the EIB has placed mezzanine finance limits to its participation and eligible projects are limited to a small number of industries.

The EIB initiative comes at relatively small impact to the EIB balance sheet and is a lower cost option to state institutions than guarantees of a project's revenue, forward pricing of services and senior debt (Regan 2009). The lessons learnt from this pilot program will provide a blueprint for advancing credit support for PPP infrastructure projects at relatively low state risk and may play an important role within ASEAN in boosting the resources available to infrastructure finance.

Institutional Setting

Institutions are important to foreign investors and financiers who need the certainty of property rights, stable economic policies, freedom to repatriate dividends and interest, sound governance, favourable foreign ownership policies, recognition and enforcement of contracts, and speedy access to an independent judiciary or alternative dispute resolution mechanisms to resolve disputes. Evidence suggests that institutional effectiveness in countries is correlated with the rate of economic and social development.

The relationship is strongest in those economies with factor-driven economies or economies in transition from a factor to an efficiency-driven economic structure (Regan, Smith, and Love, 2013). Myanmar, Lao PDR, Viet Nam and Cambodia are designated as factor-driven economies, while Indonesia, Malaysia and Thailand are efficiency-driven. The Philippines is in transition between the two stages (World Economic Forum, 2012).

2.1.Institutions Dealing With Foreign Financing

A survey of institutional management of foreign finance for PPP projects within ASEAN indicates that Treasury and Finance agencies will provide approval and in some cases, oversight of foreign-sourced PPP finance. External finance has several implications for national governments, including private debt aggregates, the assumption of contingent liabilities in the form of guarantees, externalities, early exercise of step-in rights and direct or indirect debt participation in the project.

In some jurisdictions such as Lao PDR and Myanmar, negotiations with PPP contractors and their financiers is undertaken by line agencies, such as the Department of Mines and Energy with oversight by the Department of Planning and Investment. One important thing is the incorporation of estimated potential future fiscal liabilities into national budget system over similar horizon; unfortunately, these two usually are detached in many emerging economies.

2.2.Types of Foreign Finance

The following five methods are the most commonly used to finance privately managed infrastructure in the Asia Pacific area, although practices may vary between regions:

- Conventional limited recourse medium and long-term project finance
- Medium-term corporate debt that is refinanced at intervals of 7 to 10 years. Refinancing of robust economic infrastructure projects offers equity investors the opportunity of equity gains and higher debt levels against increases in asset values, which reduces the overall cost of capital for the project. However, regular refinancing introduces the risk that debt may be difficult to raise and interest rates will be higher at the time of refinancing
- The issue of long-term senior bonds, medium term subordinated bonds and mezzanine bonds of various maturities on capital markets or by private distribution
- Provision of full or partial project debt by state development banks and lending institutions
- The listing of all or part of the equity of the consortium investment vehicle on a securities exchange and the financing of debt using corporate or project finance at lower debt to equity levels than conventional project finance.

The credit enhancement and financial risk management instruments available to support infrastructure finance and disperse financial risk include sovereign/political risk insurance, currency and interest rate hedging facilities, the guarantee of forward supply or off-take agreements with buyers, and traded derivatives to limit output price volatility.

2.3.Sample Procedures for Foreign Finance Approval and Management

Recent surveys of ASEAN member nations indicate that as a general rule, infrastructure projects are nominated by line agencies subject to the oversight and approval of central agencies of government (Sugiyana and Zen (eds), forthcoming, and Zen (ed.), forthcoming). In Lao PDR for example, hydro energy projects are negotiated by the Ministry of Energy and Mines in conjunction with the Ministry of Planning and Investment and approval for the financing arrangement will be the Ministry and, for major projects, a formal meeting of the executive. In Thailand, the project is negotiated by the line agency in conjunction with the Ministry of Finance. Cabinet gives final approval for foreign sourced finance.

In nearly all jurisdictions examined, with the exception of Lao PDR, the

Ministry of Treasury and Finance plays a central role in the finalisation of project financing agreements and delegates detailed contractual negotiations to the line agency. Ultimately, the Ministry will sign off on the transaction before it is presented to the cabinet for final approval. A similar approach is adopted in other Asia Pacific countries with limited exceptions.

2.4.Managing Contingent Liability

Contingent liabilities arising from government exposures to PPP contracts include guarantees of revenue, private debt obligations, provision of loans, indemnities, the execution of step-in rights, a contractor's unilateral withdrawal from the contract or the loss or destruction of assets. Events that affect the performance, cash flows and the financial position of a public entity are provisioned in the entity's financial accounts (IPSASB, 2013). International public sector standards for government financial reporting are published by the International Public Sector Accounting Standards Board (IPSAS). Full compliance is observed in Malaysia, the Philippines, and Singapore and adoption is progressing in Cambodia, Indonesia, Lao PDR and Viet Nam. ASEAN members not fully compliant at the present time include Brunei Darussalam, Myanmar, and Thailand.

Standard 19 contains disclosure requirements for reporting provisions, contingent liabilities and contingent assets. Governments are required to make provision and provide information about non-remote contingent liabilities at the reporting date (paras. 35-38; 100). The recognition of the liability uses a probability test adjusted for reimbursements or indemnities from other parties, and may be valued using discounted cash flow methodology. The practical effect for government compliance with IPSA 19 is that potential liabilities arising at a future time will need to be recognised in government accounts. The provision may not apply to contracts entered into by government business enterprises.

Standard 32, released in October 2011, provides for recognition of service concession arrangements for public sector entities employing the accrual basis of accounting. The standard applies to existing and new assets constructed by concessionaires under a "right to control" test. The standard does not apply to government business enterprises. A grantor agency must account for the concession and associated assets in its balance sheet as a non-current asset and capitalise future payments due under the arrangement

to the contractor as a contingent liability.

Reporting of contingent liabilities is an important step in achieving greater transparency for long-term contracts for private provision of infrastructure services. Adoption and compliance with IPSAS standards is a matter taken into account by international credit rating agencies in their assessment of sovereign risk.

Indonesia's Case

Indonesia has several ways to manage her fiscal risks associated with the contingent liabilities of infrastructure projects. First is the establishment of a guarantee company called PT. Penjaminan Infrastruktur Indonesia (Indonesia Infrastructure Guarantee Funds = IIGF) into which the government injects the capital. The company is responsible for assessing and providing guarantees for the PPP projects that need it. This mechanism reduces the government's exposure to the contingent risks, since the IIGF is the only guarantor. The government's second means of managing fiscal risks is by putting aside certain funds as fiscal risk reserve in the national budget annually. This posting is a reservation in case some infrastructure projects need to be backed up financially. However, both reservations are planned ones, meaning that the amount of funds is determined by government plan or by an ad hoc decision to estimate the coming year's obligation. So far the estimations of contingent liabilities have been simulated by the Ministry of Finance (MOF) but not monetised and fully reflected in the National budget.

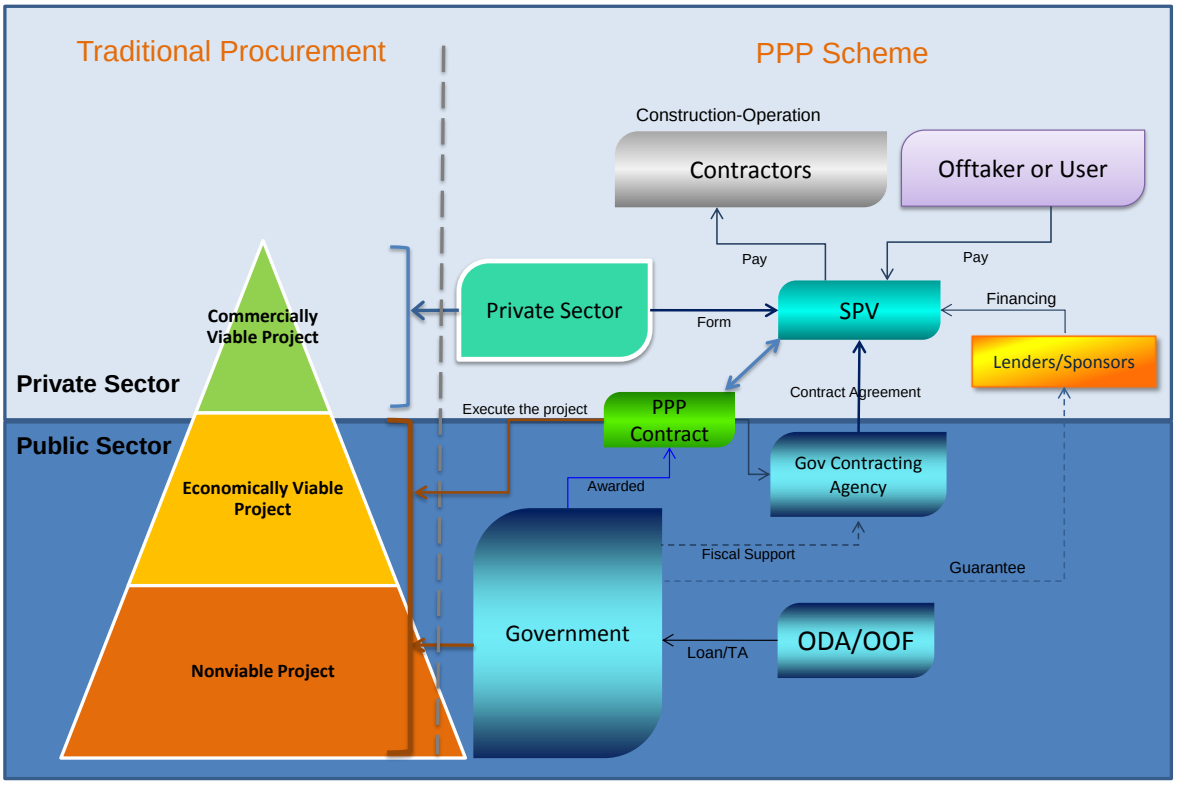
In FYs 2012 and 2013, apart from contingency funds for PLN (National Power Company) and PDAM (Regional Water Companies), the government did not allocate any other contingency funds. In infrastructure posts budgeted outside line ministries, there were some 20 posts allocated including land capping, pre-FS for PPP, VGF, capital injection for IIGF and SMI (a supporting company owned by the government to facilitate PPP implementation), and loan to PLN. Actually there is a budget post for Infrastructure Budget Reserve but, as mentioned earlier, the government has not allocated money for this post. In short, even though the government has been incorporating short-term liabilities, including contingent liabilities, in the long-term they have not been incorporated in fiscal policy. An unclear estimation of the long-term fiscal risks of projects may hamper the government from taking the decision to guarantee projects, if the government is risk averse, but can have the reverse effect when the government is risk-insensitive or short-sighted.

Financing Mechanism of a Selected MPAC Project: Example of Route AH-13

This part of the paper is not intended to provide a solution for the project described below; it requires a detailed study and additional effort to generate an in-depth analysis of the project situation, technical requirements and costs, and thus proposals for financing schemes. What this section provides is the preliminary assessment of the project's situation based on available data and information. On that basis some feasible financing schemes can be discussed which later can be used as starting points to elaborate their details. The illustrations of financing schemes are also simplified in order to maintain generality.

As an illustration, the following diagram summarises the types and relationship of traditional procurement and PPP. Traditional procurement typically recognises two types of system, i.e.: public or private procurements. When the projects are attractive for the private sector that usually does not contain market failure, government usually lets the market work. Among examples are IT or power distribution projects that achieve economies of scale. Unfortunately, typical infrastructure projects usually fall into nonviable or non-commercially viable categories. With limited available public funds, direct fully funded finance is usually constrained, hence government will need to find additional finance, including borrowing and grants. PPP offers additional schemes that can bring private and public sectors together to finance non-commercially viable projects.

Figure I.1. Financing Infrastructure



Master Plan of ASEAN Connectivity has stated six prioritised projects for ASEAN Connectivity within the context of physical connectivity. Perhaps the most challenging project is completion of the ASEAN Highway Network (AHN) missing links and upgrades of the Transit Transport Routes (TTR). There are some routes that are not yet completed or where work has yet to start. We take as an example of such a project, whose status is "Need Funding"[2], Route AH-13 (NR2): Muang Ngeun Oudomxay-Taichang (Lao-Vietnamese border) with a total length of 202 km.

On the Lao side of the border, the route is part of an international road connecting Muang Ngeun in Oudom Xay state (near the Thai border) to Taichang in Phongsaly state near border with Viet Nam. As a landlocked country, Lao's international connections rely on land and air links, and on open access to seaports in neighbouring countries.

Phongsaly province, inhabited by 179,600 people[3], is located in the remote northern mountainous region of Lao PDR and has very poor infrastructure.

[2] ASEAN Connectivity Projects Information Sheets, as of August 2013.

[3] http://www.fao.org/docrep/009/ag106e/ag106e08.htm accessed in October 2013

Three most important facilities—roads, healthcare, and education,—are often not available in or accessible to many villages. Phongsaly province is also one of the poorest in Lao PDR, with three out of seven districts classified as poor. The region has suffered from the absence of a rice-supply for more than half of each year.

The United Nations Office on Drugs and Crimes (UNODC) reported that Phongsaly province had 3,872 ha of opium poppy cultivation, accounting for 20% of the national total production, with 513 villages out of 611 growing opium and an addiction rate of 5.6%. Despite a major decrease in these numbers after the government ban on opium poppy cultivation, Phongsaly, which currently accounts for the highest number of districts below the poverty line, remains one of the major opium producing provinces in the country[4].

Change in the economic profile of such communities requires technical and economic support to enable viable and sustainable income generating activities, investments in basic infrastructure and access to credit and savings funds.

On the other hand, China has planned to build a high-speed railway to connect Kunming with Bangkok through Vientiane. The line will pass through Oudom Xay where Chinese immigrants have arrived in numbers and built commercial centres including hotels and supermarkets.

Oudom Xay borders China to the north and Phongsaly province to the north east. It has relatively rich natural resources particularly iron, salt, zinc, bronze and antimony. Its agricultural products are mainly corn (maize) and rice.

Given the general economic situation of the region, one can see why funding for the AH-13 is lacking. It has very little potential for revenue generating since its users will be mainly the poor. According to the UNODC, in Phongsaly province, the severe insufficiencies in basic infrastructure largely contribute to the fact that more than 50% of villages have no access to markets, while the daily per capita income is well below 1 USD. Both Odoum Xay and Phongsaly are poor provinces with high potentials in agricultural and mineral resources. Providing sufficient access to market is a fundamental requirement to support economic activities and poverty alleviation.

[4] https://www.unodc.org/laopdr/en/projects/I32/I32.html accessed in October 2013.

Another key feature of this route is as a cross-border connection with Viet Nam. It will have to deal with two different jurisdictions as well as likely different regulations when people and goods cross the borders. However, dealing with cross-border regulation is much easier when the connection has been formally established and maintained. Therefore establishing the AH-13 route has several benefits, i.e.: connecting northern Thailand to northern Lao PDR and northern Viet Nam (an extension of the AHN route would reach Myanmar as well), providing basic infrastructure for people in Oudom Xay and Phongsaly provinces so that they can have access to larger markets, and supporting poverty alleviation in these provinces; thus this project has high socio-economic returns.

Lao PDR needs support, especially from neighbouring countries and the international community. Given the facts that: (i) Lao PDR has low fiscal capacity to finance all infrastructure needs, (ii) the project utilisation is not revenue generating, (iii) the project will have economic impact in the regions and neighbouring countries, and (iv) both Lao PDR and Viet Nam are categorised as beneficiaries of leading international development partners; we propose some possible options for financing the project:

3.1.Sovereign Financing, Public Procurement

The Government of Lao PDR must be responsible for a major part of project cost. The Thai government can possibly share the burden by contributing grants. The main sources of funds may come from international development partners, such as The World Bank, ADB, and OECD, or bilateral supports including JICA and AusAID. Procurement for this project will be carried out through traditional public procurement in compliance with international standards.

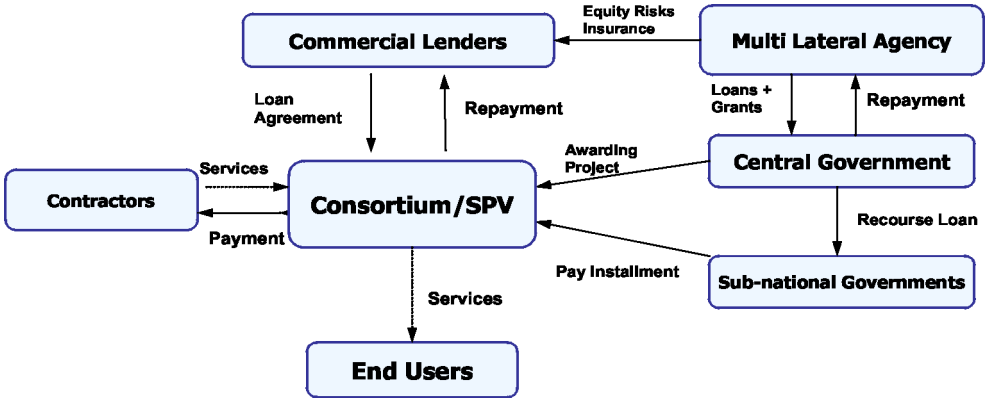
The most important thing to be considered is the estimation of fiscal liability to be born by the Lao government. This should be capped at the ceiling allowed by international standard to guarantee the fiscal sustainability of the national budget. If the amount of liability is higher than a safe threshold, the international community should take on the rest, possibly through grants.

3.2.Sovereign Financing, PPP scheme

Under sovereign financing, it is still possible to apply a PPP scheme. The

objective is to improve efficiency and the quality of the project's deliverables. While the private sector will not sell tickets for use of the road to end users, the government can pay the construction and Operation and Maintenance (OM) costs in regular installments within an agreed period. The private sector may have better capacity to deliver the project and carry out maintenance, as well as to operate the road. We can expect higher reliability and quality if the private entities are the best ones chosen through competitive bidding.

Figure I.2. Possible Model for Route AH-13: Option 2 Road Only



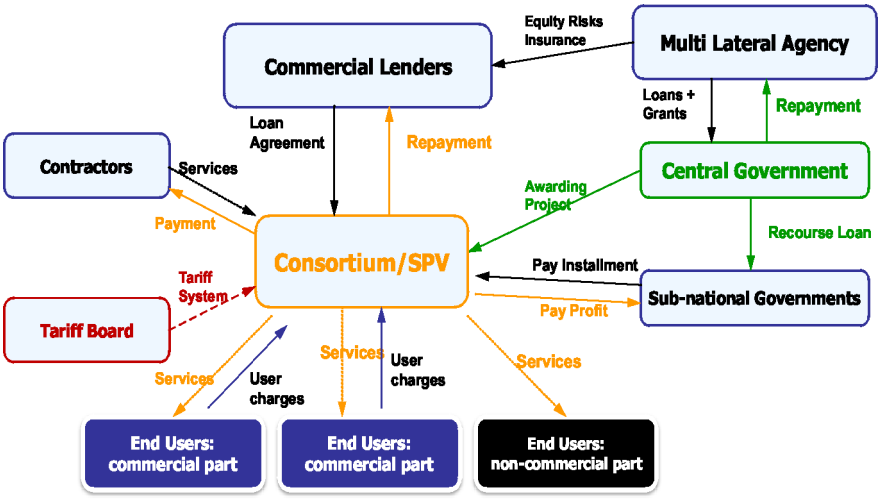
3.3. Hybrid Financing, PPP scheme

Route AH-13 has 391km of total length, which means that it is a very long road. It is consequently difficult to get a single sponsor for the whole project. The project can be divided into several blocks of work, in which different lenders or sponsors can participate. The financing scheme can be explored for some possibilities, for instance:

a. Mix of national or provincial budget, grants and loans from development partners, and upfront construction funds from the private sector which will be converted into loans paid in several installments.

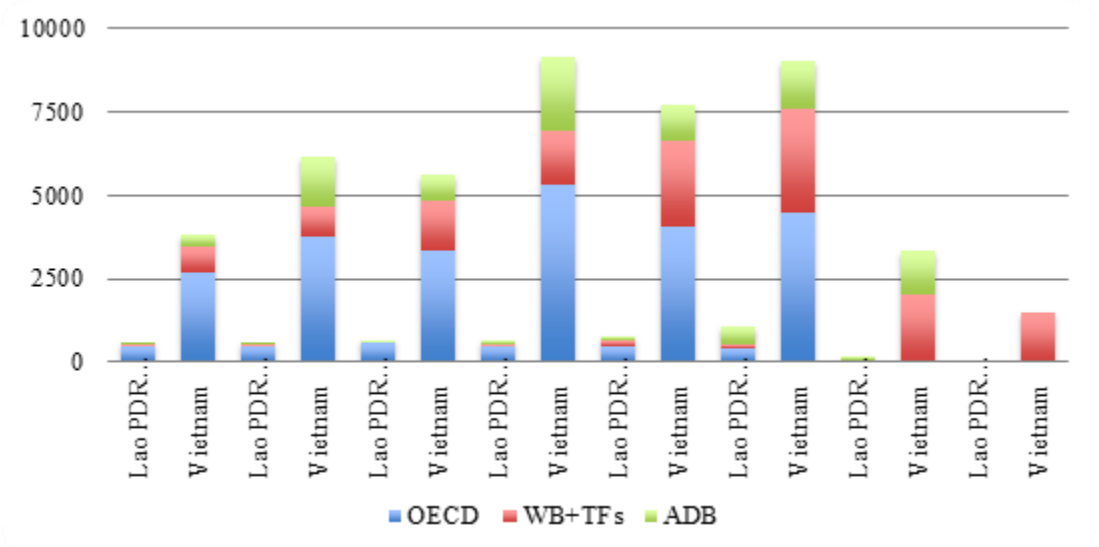
b. Some blocks may be financed by the private sector under a package of commercial development plans, for example: tourism facilities/complex, markets, real estate, etc. integrated with the road block. Hence, the project is expanded from a purely road project to an all-inclusive project. The private sponsors cannot get revenue from the road because it will be made available free as a public good, but the commercial complex will be an income-generating project that will pay for the road construction and OM costs.

Figure I.3. Possible Model for Route AH-13: Option 3 Hybrid Financing: Integrated Block (Road + Commercial Complex)



The figure below shows the amount of aid received by Lao PDR and Viet Nam during recent years. One can see that Viet Nam is a more active recipient compared to Lao PDR, sourced from various donors. In terms of preference as aid recipient, both Viet Nam and Lao PDR have good possibilities of attracting aid to finance the project. Lao PDR has been the lowest aid recipient, and with its welfare condition, there is a strong justification for international donors to provide better support. However, in terms of issuing bonds to finance the project, this would be very difficult for Lao PDR since the country has no record of sovereign rating assessed by any leading rating companies. Therefore the most feasible sources of funds are probably: sovereign loans, grants, loans from the private sector, and project finance invited by wrapping up the road project into a more wide-ranging project.

Figure I.4. Aid flows to Lao PDR and Viet Nam (US$ million)



Source: www.aidflows.org, selected.

PPP Direction

This part discusses the direction for PPP development in ASEAN region. Focusing on the key and supporting factors to be scoped in the process, the study eliminates several factors that matter in developed economies but too advanced to be implemented in immediate actions in the region.

4.1. Key Factors

4.1.1. Public

Regulations

- ***Law on PPP.*** The starting point for an effective PPP program is a comprehensive PPP policy supported by well-trained public officials, guidance materials and robust governance structures. PPP transactions are generally quarantined from other procurement policies and subject to specific approval and governance processes. A country with sound institutions may not need a regulatory framework specifically to manage PPPs. The PPP contract is internally regulated and contains mechanisms to deal with output quality, dispute resolution and change management. Output pricing is mostly agreed at the time of contract close and is subject

to periodical adjustment referenced to an indicator such as the consumer price index. An effective contract management framework is necessary to deal with the *ex post* administrative and performance matters. A country that still has problems on regulatory quality is strongly advised to enact a specific regulation on PPP. The power of this regulation must be sufficient to be enforced without intervention from other conflicting regulations. A good regulatory framework will increase private entities' certainty and confidence.

- ***Providing Certainty.*** Investment in PPPs is enhanced with greater certainty measured with sovereign risk and ease of doing business indicators. A sovereign investment grade credit rating will have a significant positive impact on attracting investors, especially foreign investors, and will reduce interest rates, fiscal burdens, and transaction costs.

- ***Dispute resolution*** mechanisms embedded in the PPP contract will provide low-cost and speedy resolution of disagreements through mediation and arbitration. Alternative dispute resolution services may be provided by industry associations, government agencies or registered individuals or firms.

- ***International support is important to improve creditworthiness as well as investment certainty and market confidence.*** Country policy should allow the project to gain from non-monetised benefits offered by development partners and promotion to the international community.

- ***Optimal risk sharing and government support.*** There should be clear and optimal risk-sharing between public and private entities, the efficacy of which may be tested by benchmarking. Government support for projects should be fully calculated within affordable range, and recognised as a contingent liability in state accounts.

- ***Contract management framework.*** The contract between the government and the successful bidder needs to be managed under a contract management framework prepared on a case-by-case basis and supervised by a trained contract relationship manager.

- ***Clear framework for governance and oversight.*** The whole process of

offering and implementing PPP project should maintain transparency and accountability. The mechanism, timeline, and procedures must be made clear and consistent for all participants.

- ***Existence of PPP unit.*** A dedicated PPP Unit will play an important role in developing PPP policy and in project implementation in host countries. The Unit will act as a "single gate" to streamline project selection and approvals, provide technical and other support to agencies, and reduce transaction costs for potential investors. The Unit will have a pool of experts with access to transactional experience and a data centre, and will serve as a coordinating hub for PPP.

Process

- ***Articulated project development process.*** The very basic requirement underlying any PPP project is a government decision on whether the country needs the infrastructure concerned. Solicited and unsolicited projects should be subject to cost benefit analysis, and demand or options analysis before a decision to proceed is announced. The process should possess clearly defined review and approval stages. The government therefore needs to have a clear expectation about project outcomes before the decision to proceed is taken. The expected output will be a justification of how the project will be funded. The government should prepare a pipeline of projects and announce these in advance of the bid process. Industry liaison contributes to a stronger bid market and provides the opportunity for bidder feedback.

- ***Next, the government appraises the options to finance and fund the project, identifies the alternatives and determines how the project will be funded in the long-term.*** Thus, the government can make a preliminary estimate of costing, undertake risk analysis, pricing and allocation and construct a public sector comparator or benchmark.

- ***The procurement decision will determine the method of delivery for the project, whether it is a traditional procurement or PPP.*** When government considers the PPP method, this must be communicated to potential investors to see their responses.

- ***The bidding process*** should comply with the principles of

transparency, pre-qualification, and competitive bidding.

- ***The selection process*** should be driven by value for money (VFM) determinations; the winning proposal is the one giving the highest utility for the use of public funds.[5]

- ***The contract should be comprehensive, so as to minimise disputes and should include a clause covering dispute resolution.*** In final negotiation, government structures the financial scheme and provides support to reach agreement with the private sector within a competitive dialogue frame.

- ***Government must estimate the contingent liabilities of the project and put these into its budgeting process.*** There should be sufficient mechanism applied to minimise the country's exposure to potential fiscal burden in the future. It emphasises the importance of having priority of approved projects, because each guaranteed project will bring fiscal consequences

- ***To avoid failure at the execution stage, proper monitoring should be conducted.*** One effective way is to establish a "dispute prevention board", where a board of experts in construction and project management regularly checks the process of construction. Mistakes can thereby be detected earlier and corrected before they ruin the project. The boards at the construction and operational stages may consist of different experts

- ***Negotiations over contractual and financial matters***. The PPP Unit should recommend independent and professional negotiators to finalise contracts with the preferred bidder. This may include competitive dialogue and repricing of risk allocation when negotiations have resulted in significant risk take-back by government.

Capacity Building

- ***There should be continuous and systemised capacity building programs*** designed for senior and line managers, private consultants

[5] Value for Money is defined as maximum utility derived from the combination of price, efficiency and effectiveness variables from money spent. It is a determination that takes into account the qualitative and quantitative merits of a proposal.

and firms to build an understanding of PPP policy and project implementation processes. This may include skills training in risk analysis, negotiations, contract management, discounted cash flow analysis and other specific technical training for PPP procurement.

- ***Evaluation and documentation:*** proper evaluation and documentation will support learning process, knowledge exchange and/or accumulation, and record lessons learned, and facilitate post-evaluation of returns.

4.1.2. Private

- ***Open for both domestic and foreign participants.*** Government can encourage local participation to build domestic capacity by designing appropriate incentives.

- ***Access to larger financial sources.*** Government facilitates the private sector gaining increased access to various financial sources. Long-term public funds such as pension funds may be accessed to facilitate investment in sustainable PPP projects. Flows of foreign capital for PPP projects should be assisted with revisions, where necessary, of foreign ownership laws, exchange controls, repatriation of dividends and interest and taxation regulations.

- ***Managing risks.*** Managing difficult risks requires the use of sound risk analysis and management practices. As a rule of general application, risk should be allocated to the party that is best able to absorb, mitigate and manage risk in a cost effective manner.

4.1.3. Feasible Projects

- ***Government should define national priorities in the infrastructure development plan.*** This will help national allocation of the budget and put the market on notice about the impending project pipeline. This is important for firms to arrange finance and assemble their bid and technical teams ahead of the bidding process.

- ***The size of projects matters.*** Projects that do not meet minimum transaction size should not be progressed under PPP. Transaction costs for PPP projects are high and thresholds need to be set to ensure

economies of scale.

4.2.Supporting Factors

- ***Supporting PPP Unit.*** A well-designed and functioning PPP Unit will expedite the application of PPP policy and project implementation. The PPP Unit should be designed with a view to the structure and processes of the host country government, the authority and scope of operations needed to do its job effectively, governance, accountability and reporting framework and financing requirement.

- ***Regional cooperation.*** PPP policy within ASEAN offers benefits for greater international and regional cooperation, although present arrangements are informal. To support PPP development in the region, a more formal approach would be to establish a PPP Centre of Excellence with responsibilities to (i) support the establishment and development of PPP Units in member countries, (ii) design capacity building programs, (iii) provide advice and technical assistance to national PPP Units in PPP policy and projects, (iv) accumulate and disseminate PPP knowledge and best practice across ASEAN member states, and (v) facilitate awareness among stakeholders about national PPP programs. The Centre of Excellence would not become a project lender or donor agency.

- ***International development partners can continue to play a role in providing grants, loans, technical assistance, and capacity building.*** The PPP Centre of Excellence could provide a key coordination and information role here.

The Concept of "PPP in ASEAN Way"

PPP has become increasingly important in being utilised as a financing scheme for infrastructure development. Although PPP has major prerequisites and is deemed suitable for more developed markets, this does not necessarily mean that emerging economies like ASEAN cannot adopt it. Innovation is needed to capture the essence of PPP principles for them to

work in the unique environment of ASEAN. Hence, the "PPP in ASEAN Way" is a PPP system tailored to suit the conditions of ASEAN Member States especially the states' development stages and regional features.

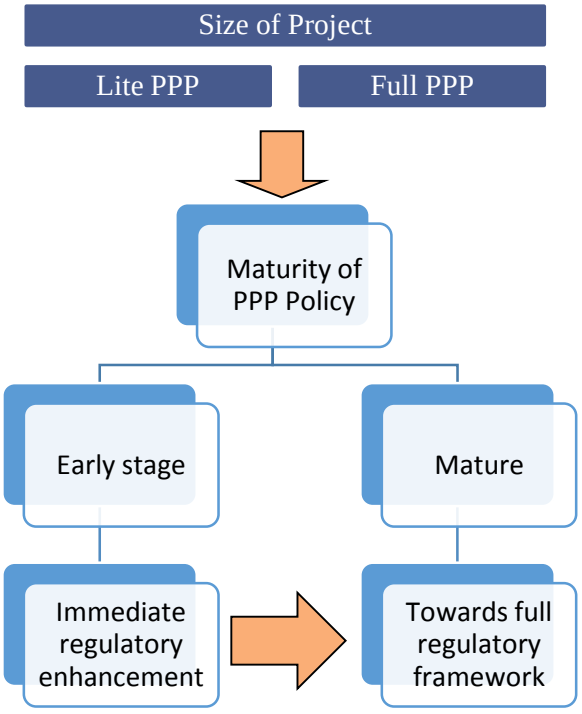
5.1. Characteristics

"PPP in ASEAN Way" would comprise a dualistic approach that takes into account the different stages of PPP policy development by recognising two broad categories of transaction (see Figure I.5):

a. *Lite PPP:* policy and implementation frameworks that expedite projects and reduce transaction costs. Lite PPP would be suitable for small to medium size projects (USD 20-50 million) that feature a state availability payment (for example, education and health services), and do not involve currency mismatch risk.

b. *Full PPP:* projects over USD50 million in value that require a comprehensive policy framework to address problems of currency mismatch, design and construction complexity, and demand risk, different stakeholders (tiers of government, investors and sponsors, affected parties).

Figure I.5. Two-Stage Approach of "PPP in ASEAN Way"



Policy provisions are needed that recognise regulatory enhancement for complex projects, to quarantine them from implementation delay in matters such as environmental approvals and regulatory exemptions or from normal procurement procedures. However, an *ad hoc* approach to large and complex projects should not eliminate the need for wider regulatory reform to improve the attractiveness of doing business in the country, support Foreign Direct Investment (FDI) for PPP projects, improve governance and reduce uncertainty. The development of national capital markets is a priority with the long-term objective of encouraging greater cross-border capital flows and development of regional bond markets.

Meanwhile, "PPP in ASEAN Way" also gives special support for cross-border connectivity initiatives**.** "PPP in ASEAN Way" should not be viewed as a separated process but instead as part of the connectivity. Greater cross-border collaboration in member countries provides opportunity to support regional connectivity. Thus cross-border infrastructure must be prioritised and supported.

On top of that, "PPP in ASEAN Way" supports involvement of the domestic private sector. There should be a significant role for domestic private companies, with benefits that include employment, technology transfer, local currency, local subcontractors, domestic insurance and financial services, and opportunities for international collaboration.

In summary, "PPP in ASEAN Way" is characterised by:

1. **Recognition of different stages of PPP policy and program development in ASEAN member nations.** Based on the maturity of PPP policy, there are two stages of approach: to address "immediate regulatory enhancement" and "towards full regulatory framework". Meanwhile, based on the size of project, there are two types of PPP schemes: early stage or "lite PPP" and mature or "full PPP".
2. **Special support for cross-border connectivity initiatives.**
3. **Support for involvement of the domestic private sector.**

5.2. Steps to Realise PPP in ASEAN Way

5.2.1. PPP Guidelines

Among the first efforts is to provide ASEAN member states with suitable PPP guidelines. The guideline is derived from the PPP Concept (PPP in ASEAN Way) and PPP Direction, which are main output of the "Financing ASEAN Connectivity" study commissioned to ERIA by The ACCC.

The document conceptualises the characteristics of PPP in ASEAN Way, describing major elements of PPP framework and tailored components to serve ASEAN characteristics. A follow-up study is proposed as immediate action with major goal to formulate PPP Guidelines.

5.2.2. PPP Forum

To establish realistic and workable PPP Guidelines and supporting technical documents, as well as to disseminate and build equal perception across ASEAN member states (AMS), we need constant inputs and feedback from stakeholders. The Forum can become a means to communicate the concept and practical approach, providing knowledge exchange and sharing experience. The feedback should be used to improve the PPP Guidelines and supporting documents. In the Forum, the idea of setting up a PPP Centre of Excellence (COE) should be communicated to determine the objectives, the functions and mechanism, the structure, and the timing.

The PPP Forum would ideally be run under the ASEAN Secretariat (or The ACCC) with active participation from relevant ministries/institutions responsible for infrastructure or PPP in each country. ERIA could take an active role as facilitator and/or resource person.

5.2.3. Technical Assistance and Capacity Building

While the PPP Forum is running to gather ideas and support, small and limited support can be provided in the forms of Technical Assistance (TA) and Capacity Building (CB). This would serve as: (i) real support for the member countries that need it urgently, (ii) assessment of the real capacity to support PPP when the PPP COE is established, (i ii) showcase that AMS are serious about implementing PPP in the right way to support infrastructure development, and (iv) way to identify potential stakeholders to support PPP

development in the region.

Funds for this activity could be requested from institutions or partner countries in EAS, meanwhile ERIA can play a role as secretariat and deploy some experts in PPP.

5.3. Further Step: PPP Centre of Excellence

In the near future, the following outcomes could be expected through implementation of the abovementioned actions:

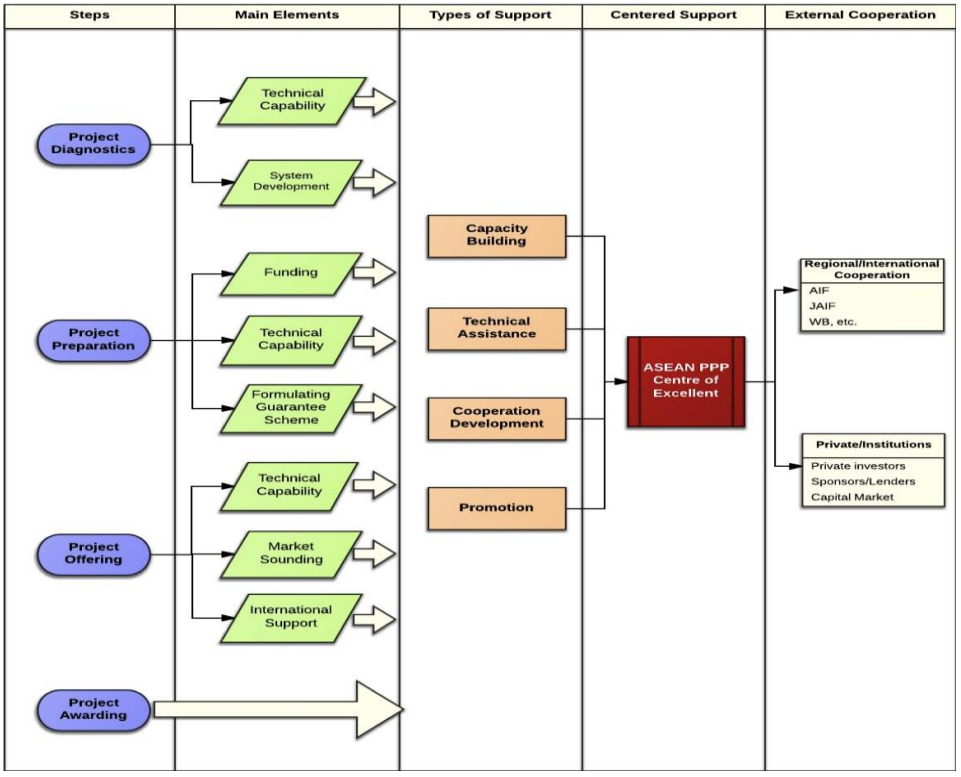
- The PPP Guidelines become mature and sufficient to be utilised as reference in the region,
- The Forum maintains regular communication,
- Success stories on TA and CB in the region.

The above situation will increase demand and support for the region to finally talk and act seriously to establish the PPP Centre of Excellence (PPP COE) (Figure I.6). PPP COE will support the development of PPP in the region and increase the mobilisation of financial resources.

Figure I.6. Roadmap for PPP Centre of Excellence

The concept of PPP COE shall be developed by considering lessons learned, existing progress of PPP development in the region, and expectation for future targets. The proposed preliminary idea of PPP COE could be illustrated as in Figure I.7.

Figure I.7. PPP Centre of Excellence



The Centre's activities will include, but are not limited to, the following[6]:

- Disseminate best practice and other lessons of global and ASEAN PPP experience, both successes and failures;
- Coordinate activities of and provide assistance to individual country authorities. Advice should focus on project selection and development, especially on risk analyses and allocation;
- Support cross-border PPP projects;
- Give advice on the method and pattern of financing consistent with the state of capital market;
- Give advice to country authorities on how PPP-readiness (legal, regulatory and institutional arrangements) can be enhanced;

[6] Shishido, Sugiyama, Zen (2013) with some changes.

- Discuss with the potential private partners on the constraints they face and on their preferences in approaches and financing as well as the constraints;
- Coordinate or manage to provide strong technical assistance and training programs to staffs of member country PPP units. It needs to make sure that the training is effective—such as, for example, secondment or internship programs to the PPP institutions in advanced countries, rather than short seminars and study tours.
- Finally, the PPP COE will also need the donors' support who would assist establishing and operating this center. Such assistance could come from major bilateral donors in the Asia Pacific region as well as key international development agencies.

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Annexes

Country Infrastructure Development Situation:

- *Indonesia: unequal infrastructure development across regions, recent progress on regulatory development, good practices on managing contingent liabilities (fiscal discipline), multi-tier government in handling PPP.*
- *Philippines: progressive implementation of PPP in both hard and social infrastructures, championship of inter-departmental coordination, strong support from the President, multi-tier government in handling PPP, quite substantial use of external support.*
- *Malaysia: clear objectives of national development, still unclear framework of infrastructure financing, utilizing bonds to finance infrastructure development.*
- *Thailand: lessons from over estimated revenue of PPP projects, managing risk allocation, new PPP law: hope for better framework, list of project, and PPP committee.*
- *Singapore: dual roles of public sector both as regulator and operator have weakened interests in PPP, efficient public sector, no project list for PPP, no champion for PPP outside MOF, PPP as part of procurements under Best Outsourcing framework.*
- *Brunei: small population, abundant oil and gas revenue in the long term has reduced the needs of strong private sector, applying limited PPP.*
- *Cambodia: lacking fiscal resources, low capacity, lacking regulatory framework, and challenging fiscal sustainability, increasing role of private participation, good progress in managing debt, improving credibility before international donors.*
- *Lao PDR: lacking fiscal resources, low capacity, lacking regulatory framework, and challenging fiscal sustainability, problem with managing debt, no credit rating, undiversified sector of private sector participation (focus on hydropower), inappropriate financing mechanism has led to macroeconomic instability.*
- *Viet Nam: Macroeconomic instability, high inflation, price volatility lead to higher risks for projects of infrastructure, high debt makes difficult to increase ODA, new PPP law is competing with government priority for reducing inflation.*
- *Myanmar: lacking fiscal resources, low capacity, lacking regulatory framework, and challenging fiscal sustainability, no credit rating, heavily dependent on ODA, as new emerging economy with quite large population*

and area Myanmar has potential to attract investment and support from international community.

Table I.A.1. Summary of PPP Implementation in ASEAN Member States

Country	Public Body Responsible for Implementation	Type of Private Sector Participation	Projects/Sector	Background/ Progress
Brunei	Department of Economic Planning and Development	Not yet determined	Housing	Just started in 2010. No specific regulation for PPP.
Cambodia	Not determined	Concessions, BOT (although there are no regulations)	Power, and limited projects in water and transport	Concessions Law issued in 2007. Still no implementing regulations
Indonesia	Line Ministries, Planning Development Agency, MOF	All types of PPP schemes	Transportation, roads, irrigation, drinking water, wastewater, ICT, power, oil and gas.	Under the new regulation (President Regulation 2011): One IPP project waiting for financial closing, 9 other projects in the pipeline.
Lao PDR	Line ministries, subnational government	Concessions	Targets: energy, air transport, telecom, roads, railways, other designated activities (water, waste management, insurance, banking)	No specific law. Limited, projects include energy, transportation, and community market.

Country	Public Body Responsible for Implementation	Type of Private Sector Participation	Projects/Sector	Background/ Progress
Malaysia	UKAS (PPP Unit)	All types of PPP schemes	Any sector fulfilling the criteria	Privatisation Masterplan and PPP Guidelines 513 projects during 1983-2010 period
Myanmar	Line Ministries with approval from Parliament	Traditional Procurement, concession (port handling)	Transportation, energy, water, seaport services	No specific law.
Philippines	PPP Center Approving bodies depend on size of projects and authority level (national or subnational)	Various BOT and contracts, joint venture, concession, lease.	All types including social sectors	BOT Law Many projects.
Singapore	Ministry of Finance	Variations of DBFO and DBO	Various, including social infrastructure	Introduced since 2004 under Best Sourcing Framework, 8 projects awarded

Country	**Public Body Responsible for Implementation**	**Type of Private Sector Participation**	**Projects/Sector**	**Background/ Progress**
Thailand	Line ministries submit application to NESDB and MOF then to Council of Ministers 4 will be centralised through SEPO	Concessions ,service and lease contracts	Various infrastructure types	(New) Act on PPP (BE 2556) private sector participation shall be centralised in State Enterprise Policy Office (SEPO) since October 2013. BTS, Motorway, Tollway
Viet Nam	The Ministry of Planning and Investment (MPI) establishes interdepartmenta l working group	PPP as special case of BOT and BTO	Roads, railway, urban transport, ports, water supply, hospitals, waste treatment, power, and others decided by the Prime Minister	Regulation on PPP has been issued in 2011.

Source: Shishido, Sugiyama, and Zen (2013) updated

CHAPTER 1

Brunei Country Report

David S. Jones

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Introduction: System of Government and Economy

Brunei Darussalam is a small sultanate situated on the northern coast of Borneo and surrounded on its landward side by the East Malaysian state of Sarawak. Its land area is the second smallest among the Association of Southeast Asian Nations (ASEAN) member states, comprising 5,765 sq. km, 70 percent of which is covered by rain forest. Its population, the smallest in ASEAN, comprises 418,780 residents who are scattered along or near the main roads and highways, and along the main river courses. They are chiefly composed of Malays (around 66%), the Chinese community and indigenous groups (together nearly 15%), and a large expatriate population (nearly 20% of the resident population, who are engaged in both professional and unskilled/semi-skilled occupations).

The system of government in Brunei is monarchal and statist. Executive power resides in the His Majesty the Sultan, who is supported by a Council of Ministers or Cabinet. To reinforce his executive authority, the Sultan is prime minister (as well as minister for finance and minister for defence) and so has overall responsibility for the affairs of state. Day-to-day executive power and policymaking are exercised by ministers. The main institution of government administration is the civil service, which consists of 13 ministries and employs just over 48,500 people. The civil service is supplemented by a few statutory authorities (Jones, 2012).

Brunei is a high-income economy although income per capita has fluctuated from just below to just above US$50,000 at purchasing power parity (Figure 1.1; Table 1.1). This is the second highest in ASEAN and East Asia, below Singapore but above Hong Kong. Gross domestic product (GDP) growth rates have varied greatly over the last 10 years from a high of 4.4 percent in 2006 to a low of -1.9 percent in 2008, reflecting the influence of the fluctuating price of oil and gas in an oil-and-gas dependent economy (Figure 1.1; Table 1.1). Brunei's growth rate on average over the last 10 years is the slowest in ASEAN.

Figure 1.1: Brunei GDP Per Capita and Growth Rates, 2003-2011

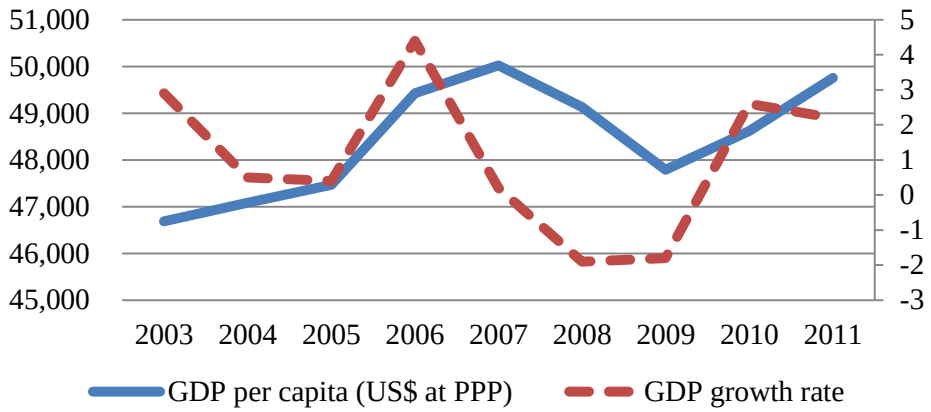


Table 1.1: Brunei: GDP Per Capita and GDP Growth Rates, 2003-2011

Year	GDP Per Capita in US$ at purchasing power parity	Growth Rates Real GDP (%)
2003	46,685	2.9
2004	47,086	0.5
2005	47,465	0.4
2006	49,428	4.4
2007	50,026	0.2
2008	49,132	-1.9
2009	47,793	-1.8
2010	48,620	2.6
2011	49,757	2.2

Source: ADB, 2012.

The state plays a key role in the economy through the commercial functions exercised by ministries and state-owned enterprises, and through public-private partnerships (PPPs) in sectors such as oil and gas production, agriculture, and aquaculture. As indicated earlier, the economy is heavily reliant on oil and gas production. This sector (mainly based on various partnerships between oil companies and the government) comprises 62 percent of GDP, with government services comprising over 24 percent, and the private sector at just under 14 percent (Jones, 2012).

Public Finances

Overall government spending as a share of GDP between 2003 and 2011 has ranged from 29 percent to 50 percent, averaging 36 percent over the years (IMF, 2011a; ADB, 2011). In 2011, the figure was 30 percent. This is higher than in most other states in the ASEAN. Government revenue has averaged just over 50 percent of GDP from 2003 to 2011. In 2011, it was 48 percent (ADB, 2012). Most of the revenues are derived from the oil and gas sector in the form of taxes (a special corporate tax rate of 55 percent applies to this sector), royalties levied on oil and gas exploitation, and dividends earned by the government from its ownership stake in the oil and gas sector. The oil and gas sector accounted for 87.5 percent of government revenue in 2011 (IMF, 2012a; Jones, 2012). The dependence on oil and gas revenue gave rise to sharp annual fluctuations in the revenue flow to the government.

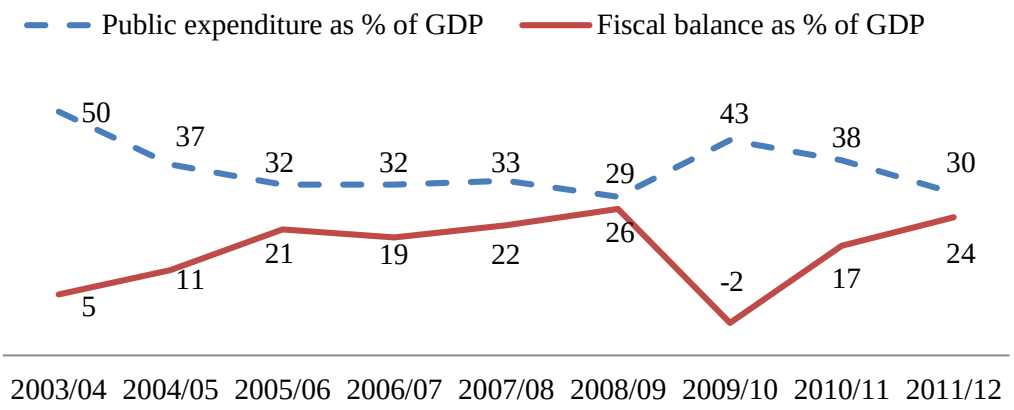
The flow of revenue from the oil and gas sector plus returns on overseas investments have enabled the government of Brunei to earn large budget surpluses. Between 2003 and 2011, the average surplus was 17.6 percent of GDP. However, due to fluctuations in oil and gas revenues, the fiscal balance fluctuated from -2 percent to 26 percent of GDP from 2003 to 2011; the surplus in 2011 was 24 percent, with the average over the period standing at 16 percent (Table 1.2; Figure 1.2).

Table 1.2: Brunei Budget Expenditure, Fiscal Balance, and International Reserves, 2003/04 – 2011/12

Year	Total Expenditure (In millions of Brunei $)	Total Expenditure as a Percentage of Nominal GDP	Fiscal Balance as a Percentage of Nominal GDP	International Reserves (US$ million)
2003/04	5,747	50	+5	475
2004/05	4,937	37	+11	489
2005/06	5,153	32	+21	491
2006/07	5,770	32	+19	513
2007/08	6,020	33	+22	667
2008/09	5,975	29	+26	751
2009/10	6,639	43	-2	1,357
2010/11	6,351	38	+17	1,563
2011/12	5,800	30	+24	2,584

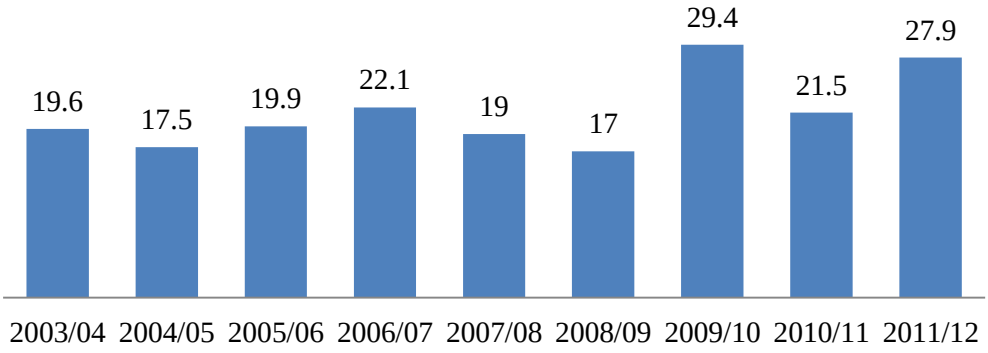
Source: IMF, 2012a: IMF, 2012b; ADB, 2012; World Bank, 2013.

Figure 1.2: Brunei Public Expenditure and Fiscal Balance, 2003-2012



With regular and substantial budget surpluses, the Brunei government has no external borrowings, and is thus not required to issue debt (except for short-dated *sukuk* issuances). Instead, it has accumulated significant international reserves and foreign equity holdings. Its international reserves have risen more than five-fold, from US$475 million in 2003 to US$2,584 million in 2011, which is 20 percent of GDP (Table 1.2; Figure 1.3) (Valev, 2013; World Bank, 2013). These figures include foreign exchange holdings of Autoriti Monetary Brunei Darussalam, monetary gold, special drawing rights holdings, International Monetary Fund (IMF) reserves and foreign bond holdings. The government's foreign equity holdings are extensive, valued at US$30 billion in 2013 (more than twice the GDP), according to the Sovereign Wealth Fund Institute (SWFI). The portfolio includes a significant concentration of hotel investments (SWFI, 2013).

Figure 1.3: Brunei Foreign Reserves as % of GDP, 2003-2011



Brunei also practices multi-year sector budgeting under its National Development Plans (NDPs). It outlines authorisations for development spending over a five-year period, within the various sectors of government services and administration, including public infrastructure development. The 9th NDP extended from April 2007 to March 2012, while the current 10th NDP extends to over the next five-year period.

The Nature and Extent of the Infrastructure

The infrastructure covered in this report includes roads and bridges, water supply, drainage and sanitation, airport and maritime port facilities, electricity generation and supply, information and communications technology (ITC) and telephonic services, and industrial park facilities. Data provided by the Asian Development Bank (ADB) in its report *Key Indicators for Asia and the Pacific 2012* and by the World Economic Forum (WEF) in its *Global Competitiveness Report 2012-2013*, suggest that the infrastructure is moderately well developed in Brunei but has yet to reach the highest standards commensurate with its status as a high-income economy.

The ADB data covers road density, electricity consumption, and broadband usage. According to its figures, the road density in 2008 was 564 km per 1,000 sq. km, 81 percent of which is paved. The road density figure is the second highest in ASEAN and has increased since 2008 due to the building of new roads and highways and the extension of existing ones. This is sufficient to meet the needs of the population (although the car ownership rate at 100 vehicles per 1,000 residents is by far the highest in the region) (ADB, 2012). The road network is to be significantly enhanced with the building of a 30-km bridge across the estuary of the Brunei River, which is to be completed by 2018 (Borneo Bulletin, 2013a).

Electric power consumption, according to the ADB data, is the highest in ASEAN at 8,662 kilowatts per capita, marginally greater than in Singapore, and nearly three times greater than in Malaysia (ADB, 2012). However, the reliability of electricity generation and supply vary from one part of the country

to another.

Only moderate broadband penetration has been achieved. Fixed broadband subscription per 100 residents was only 5.5 in 2011. This is well below that of Singapore and slightly below Malaysia's, but marginally greater than that of Thailand (ADB, 2012).

The WEF's *Global Competitiveness Report* measured the quality of the roads, airports and maritime port infrastructure, electricity supply, and telecommunications in a sample of 144 countries. Measurements were based mainly on the perceptions of businesses, and specify for each country a ranking and, where relevant, an assessment score from 1 (unfavourable) to 7 (favourable). In the assessment of the road system, scores were based on a scale of 1 (extremely underdeveloped) to 7 (extensive and efficient by international standards), Brunei was ranked 39th with a score of 5.2. For its maritime port infrastructure, Brunei stood lower at 57th out of 144 nations with a score of 4.5. For airline infrastructure, it was ranked at 61st with a score of 4.9.

For the assessment of the quality of electricity supply based on a scale of 1 (insufficient and suffers frequent interruptions) to 7 (sufficient and reliable), Brunei was ranked 45th with a score of 5.5. In telephonic and ITC penetration as measured by mobile phone subscriptions and telephone lines, Brunei was placed respectfully at 62th (109.2 mobile phone subscriptions per 100 residents) and 67th (19.7 telephone lines per 100 residents) out of 144 nations. For its overall quality of infrastructure, Brunei was ranked 40th, with a score of 5.1 within the range of 1-7 (WEF, 2012).

Water supply and drainage have been significantly upgraded in recent years and continue to be so. A high rainfall and extensive catchment area has ensured that water remains plentiful in the various reservoirs, but ageing pipes and defective pumping equipment have occasionally lead to disruptions in supply to businesses and households. This has been worsened by damage to pipes caused by contractors excavating soil and rock in road and building projects. Although the upgrading work has increased the utility's reliability, the water supply is not always sufficient to meet the requirements of irrigation systems of rice-growing enterprises in the country. The drainage improvement works have reduced the incidence of severe flooding although it can still occur especially in the monsoon period.

Brunei has, in recent years, recognised the need to create high-end industrial parks with necessary infrastructure facilities to help businesses. The first initiative, which began in 2007, is the Sungai Liang Industrial Park (SPARK), a 271-ha site intended to be "a globally competitive industrial hub, with high-end facilities and a streamlined administrative hub, centred in a business-friendly environment". The park is in part geared towards creating facilities for high-end methanol production, and the chief user and tenant is now the Brunei Methanol Company Sdn Bhd (BMC) (Sungei Liang Authority, 2013; BMC, 2013). The building of infrastructure facilities for a second industrial complex has just begun in Pulau Muara, an island in the estuary of the Brunei River. The tender has been awarded to a Chinese Company, and the complex will house an integrated oil refinery and aromatics cracker plants (Borneo Bulletin, 2013b). However, in general, the development of industrial parks has been constrained by the slow rate of diversification of the Brunei economy, partly the result of conditions not conducive to foreign inward investment.

Institutional Framework for Developing and Managing the Infrastructure

The infrastructure in Brunei is owned, managed and operated for the most part by public authorities, viz. civil service departments, wholly owned government companies, and in one case, a statutory authority. The airport is managed by the Civil Aviation Department of the Ministry of Communications, which is responsible amongst other things for overseeing the facilities and services within the passenger terminal building of Brunei Airport, managing freight storage facilities, maintaining the runway network, conducting air traffic control at the airport, and providing aeronautical telecommunications. The main maritime port at Muara and two other small ports, are the responsibility of the Ports Department also in the Ministry of Communications, which manages berthing operations and terminal services and facilities, including cranes, warehousing, transshipments, and logistic schedules.

The maintenance, upgrading and extension of the road network, water supply, and drainage and sanitation systems mainly fall within the remit of the Public

Works Department (PWD). The initial planning is often undertaken by PWD in collaboration with the Town and Country Planning Department and the Municipal Department (for both layout and building plans). The construction plans are then evaluated and approved by the Authority for Building Control and Construction Industry. The PWD through its Roads, Water Services, Drainage and Sewerage Divisions is then responsible for overseeing project implementation after the tender award, and to undertake ongoing inspections and minor repairs of roads, drains, water supply facilities, and sewerage treatment and outlets.

Nearly all of the electricity is generated and supplied by either the Berakas Power Management Co Sdn Bhd (BPMC), or the Department of Electrical Services (DES). The DES is a civil service department whilst BPMC is a wholly government-owned company whose equity is held by Berakas Management Company, which itself is wholly owned by a so-called special investment vehicle, the Brunei Investment Agency (BIA). The BIA is an arm of the Ministry of Finance, and the main investment and holding entity of the Brunei government.

The BPMC's remit is to generate and supply electricity to some of the eastern and more populated areas of the country and to strategic locations such as hospitals, schools, and government buildings. It operates its own power plants (four of them) and maintains and upgrades cable lines, and transmission and distribution substations. Overall, it supplies 44 percent of the power needs of Brunei (Brunei Times, 2011).

In other areas of Brunei, generation and supply is undertaken by the DES. It, too, operates its own power plants and maintains and upgrades cables lines, and the transmission and distribution substations under its control. In certain areas, the two electricity entities collaborate: BPMC generates the electricity, while DES is responsible for transmission and distribution (Brunei Times, 2011).

The BPMC as a company operates along strictly business lines and makes a profit (albeit small), for which it pays a tax. The DES as a civil service department is managed like most other civil service departments—i.e., it is subject to administrative rules and regulations and multi-layered hierarchical controls, with a large complement of administrative and clerical staff. The BPMC cooperates with DES by undertaking much of the repair and upgrading

of its substations, cables and plant, and by providing training for DES personnel. For its part, DES collects payments for most of the electricity usage throughout the entire country (Brunei Times, 2011).

The telephonic and ITC services are now provided by Telekom Brunei Bhd (TelBru) and DataStream Technology Group (DST), which are 100-percent owned by government holding entities (or special investment vehicles), Darussalam Assets and Brooketon Sdn Bhd (for TelBru) and BIA (for DST). Together with their subsidiaries, they provide a whole range of ITC and media services, including telephony, internet, data transmission, mobile services, integrated IT networks for government agencies, large businesses, and satellite broadcasting companies. For the purposes of satellite communication and submarine cable usage, TelBru and DST collaborate with international IT engineering companies, as mentioned below. An important aspect of their work involves upgrading internet and data transmission services, such as the current project to install underground fibre optic cables.

The ownership and management of facilities in Sungei Liang (SPARK), the leading industrial park in Brunei, is vested in the Sungai Liang Authority (SLA), which is a statutory authority set up by HM the Sultan in 2007. The authority lets the land and facilities to private sector companies of which the largest by far, as mentioned above, is BMC (SLA, 2013). On the board of the Authority are several senior civil servants, reflecting the continuing influence of civil service control. It remains to be seen whether a similar arrangement will be implemented on the completion of the second industrial zone at Pulau Muara, mentioned above.

Whilst the private sector is involved in capital projects to upgrade and expand the infrastructure through the normal procurement process, it has only a marginal role in the management and operations of the facilities, as will be discussed below. The continued importance of the civil service and state companies in undertaking these functions reflects how far the Brunei economy is controlled by the state through the civil service.

Financing the Infrastructure

Infrastructure development (i.e., construction of new facilities and major repair, upgrading and extension of existing ones) may be financed from different sources. The most important source is the annual development budget of the government. To a lesser degree, funding may also be derived from revenue generated from the use of the infrastructure if charges are levied, and from capital injected from a government holding company/entity (if the facility is managed by a government infrastructure company).

1.1. Development Expenditure of Civil Service Departments and Statutory Authorities

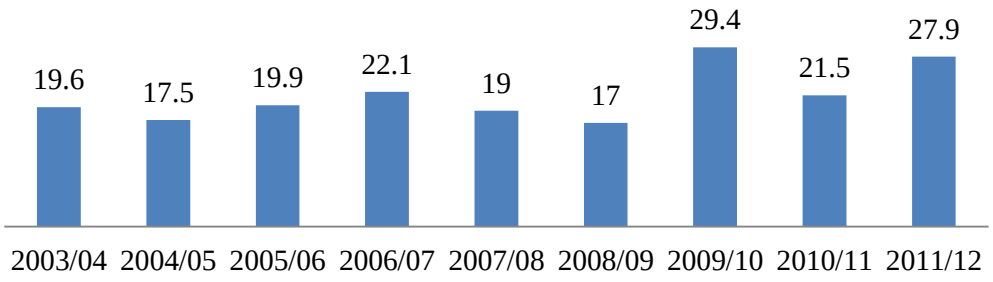
The extent of budget funding for infrastructure can be gauged from government spending allocations under the headings "development expenditure" and "other charges special expenditure" published by the IMF. Whilst both types of expenditure include capital spending outside the infrastructure such as construction and upgrading of public buildings, hospitals and schools and the purchase of equipment, a large portion pertains to the development of infrastructure. The aggregate spending on both budget categories ranges from 17.5 percent to 29.4 percent of total government spending between 2003 and 2011, with significant fluctuations from one year to the next (Table 1.3; Figure 1.4). The lumpiness in capital spending reflects both the ongoing fluctuations in revenues as a result of the country's dependence on oil and gas, and the impact on the spending figures when every so many years a costly large-scale infrastructure project is implemented in contrast to regular small-scale projects.

Table 1.3: Capital Expenditure in Brunei, 2003/04 to 2011/12

Year	Development Expenditure (B$ million)	Other Capital Expenditure (B$ million)	Capital Expenditure as % of Total Expenditure
2003/04	360	765	19.6
2004/05	355	509	17.5
2005/06	488	538	19.9
2006/07	671	602	22.1
2007/08	608	534	19.0
2008/09	595	423	17.0
2009/10	897	1,057	29.4
2010/11	871	496	21.5
2011/12	1,050	566	27.9

Note: Figures given are for the outturn except for 2011-2012.
Source: IMF, 2011a, p. 17.

Figure 1.4: Capital Expenditure as % of Total Expenditure



The development funding from the annual budget is in the main related to commitments to proposed projects authorised in the current NDP, although other capital projects (usually minor projects) not earmarked or anticipated in NDP may be included in the development budget.

In the ninth NDP (2007-2012), the total committed was B$9.5 billion, a sizeable amount given the size of Brunei's economy. Such spending commitment is broken down by sector and programme, enabling those projects earmarked for expansion and improvement of infrastructure facilities to be identified (Table 1.4). This shows that infrastructure spending is by far the largest category, accounting for slightly lower than 40 percent of the proposed capital and development expenditure over the five-year ninth NDP.

The main item for infrastructure spending in the ninth NDP is utilities (electricity, water supply, drainage and sanitation), to which over 15 percent of the development budget was committed. The importance of financing the improvement of electricity generation and supply, applied to the power plants and the section of the grid under DES, is not surprising given that there is not enough generation capacity in Brunei to facilitate any major diversification and expansion of the economy. After utilities, it is telephony and ICT (especially the latter) that secure the biggest slice of the budget commitment, accounting for 13.3 percent of the proposed expenditure. Extension and upgrading of roads, and maritime and airport facilities, as well as industrial development (including the building of industrial parks and complexes) respectively comprise 7.5 percent and 7.3 percent of the development budget.

Table 1.4: Budget Expenditure Commitments to Infrastructure Development in Brunei 2007-2012

Sector	Infrastructure	Budget Commitment in B$	Percentage of Total Budget Commitment to Development Projects
Transport and communications		**950,521,300**	**10**
	Roads	568,535,000	6.0
	Civil aviation	114,527,000	1.2
	Marine and ports	26,753,000	0.3
	Others	130,706,300	2.5
Telecommunications and ICT		**1,262,204,800**	**13.3**
	Telecoms	116,517,000	1.2
	ICT	**1,145,687,800**	12.1
Utilities		**1,492,717,900**	**15.7**
	Electricity	587,904,000	6.2
	Water Supply	524,573,900	5.5
	Drainage	202,227,000	2.1
	Sanitation	178,013,000	1.9
Industrial development		**703,472,000**	**7.4**

Source: Council for the Long-Term Development Plan, 2007: 2013.

1.2. Development Expenditure of Infrastructure Companies

If the infrastructure is owned and managed by a wholly owned government company and generates revenue, capital projects may be funded from one or more of three sources:

- Annual development budget through a capital grant;
- Capital reserve fund of the government-owned investment holding company or agency, usually the BIA;
- Capital reserve fund and retained earnings of the infrastructure company itself or its parent asset-owning company, with retained earnings derived from the profits generated from the charges levied.

Telephonic and ITC services provided by TelBru and the DST Group and their subsidiaries are funded by all three sources. By far, the most important source are capital grants from the government's development budget. A sizeable segment of the development expenditure commitments under the ninth NDP were earmarked as grants to TelBru and DST and their subsidiaries as indicated above. The ICT sector would be allotted a sum of B$28.6 million dollars, or 2.7 percent of the development budget.

In some projects, financing is obtained from the holding agencies of TelBru and DST Group—viz. Darussalam Assets, Brooketon Sdn Bhd, and BIA—as well from the capital reserve and retained earnings of TelBru and DST. For example, the upgrading of Brunei's segment of the undersea cable link from Southeast Asia to the United States will involve a joint venture arrangement, with US$30 million invested by Brooketon Sdn Bhd, US$5 million by TelBru, and US$5 million by DST Group.

By contrast, capital projects of BMPC, usually pertaining to the upgrade of equipment and cable lines, are financed not from the annual development budget of the government but from the capital injection from its owner, the BIA, and other reserves (including revenue reserves of retained earnings) of its parent company, Berakas Management Company, accumulated mainly but not exclusively from the profits earned from the electricity charges levied. To all intents and purposes, its remains independent of the annual budget.

1.3. Operating Expenditure

The operating costs of the non-revenue-generating infrastructure such as roads, tunnels, drainage and sanitation, and public buildings are of course financed

from the operating budget of the relevant civil service ministry or department. The budget is used to defray everyday expenditure for inspections and minor repair, ongoing administrative costs, procurement of small-value supplies and equipment, and costs of training programmes, as well as the salaries and wages of professional, supervisory, and clerical staff. It should be noted that in the case of roads, the revenue generated from duties on vehicle imports and annual road tax payments are treated as part of the general operating revenue of the government and not earmarked for road maintenance and expansion. This likewise applies to customs and excise duties and airport taxes.

The operating costs of civil service departments responsible for revenue-generating infrastructure such as the maritime port, airport, water supply, and the segment of electricity generation and supply under DES, may in part be discharged out of the revenues earned but to a significant extent, are met out of the budget. The charges levied are often below cost recovery; therefore, a budget subvention is required. For example, the price of water is below cost recovery, but the price of electricity, whilst cheap, still enables DES to meet a good portion of its operating cost due to the subsidised price of locally produced natural gas. The operating costs of infrastructure companies BPMC, TelBru and DST Group are met out of the charges levied. As with DES, BPMC benefits from the highly subsidised natural gas it uses, enabling it to levy low electricity charges and still make ends meet.

1.4. Absence of Debt Issue and Donor Aid

What is noticeable is that the capital funding of the infrastructure does not involve borrowing. The Brunei government and the companies involved in infrastructure do not issue bonds to finance capital projects (except for small scale and short-dated *sukuk* issues). Nor do the Brunei government, holding companies and infrastructure companies provide loans for infrastructure development. Not surprisingly, capital funding is not obtained from international donor agencies in the form of grants and loans, given the high standard of living in the country and substantial revenues from oil and gas.

1.5. Slow Rate of Spending and Implementation

A feature of the development and financing of Brunei's infrastructure is the slow rate of progress in implementation. Of the 251 projects listed in the five-year plan for 2007-2011, 185 were still in progress or had been completed beyond the schedule. Only 142 were completed by March 2013. Annual projected expenditure on the projects ranged from 8.01 percent to 12.17 percent of GDP (median: 9.80%) during the period 2007-2011, but actual expenditure ranged from 2.67 percent to 5.75 percent (median 3.48%) (Brunei Times, 2012).

In an internal informal survey amongst Ministry of Development officials to ascertain the reasons for the delays, 285 responses were elicited. The key factors mentioned in 60 percent of responses were the slow appointment of consultants (most serious), delays in developing a project or procurement plan (including objectives, work scope, design, and specifications), and delays in the conduct of land surveys. Other reasons were queries by tender boards to those officials/committees requesting the procurement, failure to secure the tender board or government's final approval of the tender, difficulties in securing permits to lease and occupy land, especially if compulsory acquisition was required, and lack of professional personnel to design and manage a project.

Private Sector Involvement and Public-Private Partnerships (PPPs)

Brunei depends on the private sector when it comes to developing infrastructure through conventional construction and engineering procurement. Here, firms are invited to submit bids in competitive tenders (or in requests for proposals). By contrast, private sector involvement in the operations and financing of the infrastructure in Brunei is limited.

1.6. Procurement

In developing the infrastructure at the procurement stage, a consultancy firm is hired through a competitive tender to determine the suitability of the land and location with reference to such variables as soil type, topography, liability to subsidence and movement, and drainage. Either the same firm or another firm may be hired to draft designs for the project, assess the environmental impact of the project, estimate costs, determine criteria to evaluate bids from construction contractors, and even to manage key stages of the construction work. The last mentioned, though, might be undertaken by PWD. The reliance on consultants is partly due to the country's lack of necessary expertise in such areas as quantity surveying, architectural and engineering services, and project management, in line ministries and departments. In consultancy tenders, bids are usually invited from local firms, or from joint ventures of local and foreign firms.

Private-sector construction companies are of course involved in the tender for the main building contract. Given the small size of Brunei's economy and especially the limited scope of the private sector, it is necessary in large infrastructure projects to invite tender submissions and proposals from overseas construction contractors. If, as is usually the case, a large project is awarded to a foreign contractor, two conditions may be stipulated. Firstly, the foreign contractor may be required to enter into a partnership or consortium with a locally owned business. The locally owned partner may contribute the working capital and technical input to the project. Alternatively, the foreign contractor may set up a local subsidiary with local equity participation. Here are examples of actual arrangements for recent and current projects:

- A contract to upgrade and extend Brunei's international airport was awarded to Trans Resources Corporation Sdn Bhd, a large Malaysian construction and engineering company, in partnership with a smaller Bruneian company JV Swee Sdn Bhd (Brunei Economic Development Board [BEDB], 2012a).

- The major extension of the main highway in Brunei was awarded to Third Harbor Engineering Co Ltd of China and Surati Construction Sdn Bhd of Brunei (BEDB, 2012b).

- The contract to provide consultancy services for the building of the new bridge that will connect Pulau Muara (where a large petro-chemical

complex is to be built) to the Brunei mainland, has been awarded to a consortium led by Korean bridge specialist Pyunghwa Engineering Consultant Ltd, and Bruneian consulting firm Jurutera OMC (BEDB, 2012c).

Secondly, the main contractor is, as much as possible, required to award sub-contracts to small building and engineering firms already existing in Brunei. This provides the means of generating business for them and creating local employment when such opportunities may not otherwise arise because of the limited scope of the private sector.

1.7. Management and Operations of the Infrastructure

In contrast, in the day-to-day management and operations of the infrastructure, the private sector plays a limited role only. Whilst the Brunei government is open to and indeed advocates PPPs, the progress in this regard has been slow.

One type of PPP is a joint venture between a public agency and the private sector in building and operating an infrastructure facility, although such an arrangement has still not been fully utilised in Brunei. The creation of joint ventures is most seen in the collaboration of Brunei's two ICT companies with private firms. An example is government-owned TelBru and two foreign companies' joint venture known as Network Integrity Assurance Technologies (with TelBru as the major equity holder), which was set up for a project that aimed to expand satellite connectivity networks in Brunei. Another IT joint venture known as Brunei International Gateway was set up in 2009 to develop and to manage Brunei’s segment of an undersea fibre optic cable link between Southeast Asia and the United States. This joint venture involved TelBru, DST and Brooketon Sdn Bhd. (a holding company), all of which are state owned, although the project was announced as a PPP (Ministry of Communications, 2009).

Other PPP variants such as the Build-Operate-Transfer (BOT) or Build-Operate-Own (BOO) arrangements still have only limited scope in Brunei. Under these partnerships, the private sector companies, often in a consortium,

build a public facility by raising their own finance and then operate the project. The return will then provide the means to repay the borrowed capital that was used to finance the construction, discharge day-to-day operational expenses and gain the required net profit. However, such arrangements in Brunei have been confined to building and operating industrial complexes only, the most recent being the award of a contract to build facilities for a petro-chemical refinery complex to Hengyi Corporation of China at Pulau Muara Besar. The company will both build the refinery, and then own and operate it, and the construction that it will finance will cost B$5.5 billion (Borneo Bulletin, 2013b).

The question now is: Why has the expansion of PPPs in infrastructure management been slow in Brunei. There are several reasons. One is the reluctance of the government to forego control of key national resources given its belief in a statist approach to the economy. Another is the ready availability of budget finance, which reduces the need to raise private finance. A further reason is the absence of a debt market in Brunei to enable companies to issue debt or acquire loans from financial institutions to finance construction projects guaranteed against the future revenue from the facility (provided by the government or by users). A fourth reason is the paucity of companies in Brunei to manage a large infrastructure facility, which can provide the security to raise finance and the expertise and resources to manage it.

Moreover, while foreign companies may have the capacity and wherewithal, and would be welcomed to participate in PPPs, they may be put off by the limitations of scale, which reduces returns. A small economy and a small population naturally affect how much return can be secured from building and operating an infrastructure facility. This is compounded by the extent of red tape and bureaucracy that businesses encounter in Brunei, well documented in the World Bank's *Ease of Doing Business* surveys. In these surveys (which measure red tape, unnecessary regulations and other impediments to business), Brunei is not awarded a high rating on most measures and has a low global ranking. Particularly troubling are the low scores and ranking for the "ease of starting a business". In fact, one report on economic diversification in Brunei noted that "the major reforms that need to be carried out in Brunei are to reduce bureaucracy and red tape as they affect private businesses, and in relation to this, to restructure the public sector so that the government gradually withdraws from parts of the economy that are best operated by the private sector" (Crosby,

2007). While foreign companies may be willing to tolerate red tape and intrusive bureaucracy if they are assured of a lucrative return on their investments within a large market, they may not be so if the returns are likely to be marginal in a small market (Crosby, 2007).

ASEAN Connectivity

So far, examples of Brunei's cooperation with other ASEAN states on infrastructure development have been few and far between. Given the financial resources available in Brunei and its commitment to cooperation and increased ASEAN connectivity, there is no reason why it could not contribute to infrastructure development in other states of the region. Brunei can contribute the most by way of capital funding and equity injection by the Brunei government, the Brunei Investment Agency and infrastructure companies themselves, that would help to provide a stronger funding base for infrastructure companies in other states in the region. In addition, the infrastructure companies can provide consultancy and technical advice to other states, although Brunei's own managers and employees themselves need further training to enhance their own professional and technical skills. Moreover, in light of the educational resources in Brunei and its commitment to expanding tertiary and professional training institutions, there is scope for Brunei to become a training hub to equip infrastructure managers and specialists from other ASEAN states with the skills to manage infrastructure development.

Conclusions

Funding the development and management of Brunei's infrastructure is not an issue given the sizeable budget allocations made possible by public revenues from the oil and gas sector. However, two key challenges remain.

One, the country still needs to involve the private sector more in managing and operating infrastructure facilities, and to move away from the present public sector monopoly through civil service departments, statutory authorities, and wholly government-owned companies. This will not be easy given the

impediments to private sector involvement mentioned above. The challenge here is to diversify the economy and to build a modern private sector and an independent and profitable corporate base (in addition to oil and gas)—an objective that has been much debated as well as supported for many years. Although limitations of scale remain, more progress can be made to attract both local and foreign investment by reducing intrusive bureaucracy and red tape, and creating for foreign investors more flexible requirements with respect to local partnerships.

Two, there is the need to increase technical and managerial skills across the board: within government agencies, consultancy firms, construction companies, and companies that could potentially be involved in managing infrastructure facilities. Currently, there is a shortfall of qualified engineers, technical specialists, and management professionals. The report on diversification as discussed by Crosby (2009) identified "the lack of citizens trained in…management, marketing, medicine, engineering and IT" as a major impediment to economic development and diversification. This is reflected too in the WEF's assessment of education and training in Brunei as contained in *The Global Competitiveness Report 2012-2013*. According to the WEF findings, only 17.2 percent of people who have reached the requisite age are enrolled in tertiary education (giving Brunei a global ranking of 98th out of 144). On a range of 1 to 7, business people rated Brunei only at 3.5 in terms of the availability of research and training services, giving Brunei a global ranking of 109th out of 144 countries). The extent of staff training was scored at 4.1 only (ranking Brunei at 52nd out of 144), while the assessment of the quality of management and business schools was rated at 4.3 (a ranking of 58th) (WEF, 2012).

If progress can be made in training engineers, technical specialists, management professionals, and accountants, this will enhance the capacity of government agencies, consultancy firms, and construction and other companies in developing and managing the infrastructure.

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CHAPTER 2

Cambodia Country Report

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Introduction

After years of civil unrest and political isolation, Cambodia is now moving towards a free market economy and peace as a nation, thanks to its efforts on national reconciliation and on political and economic reforms.

After it became the newest ASEAN member in 1999, Cambodia is in the right direction in rebuilding itself. Economic growth averaged about 7 percent per year, and GDP per capita increased about three-folds from US$310 in 2002 to about US$1,000 in 2012.[1]

Higher inflows of foreign direct investment (FDIs) contributed to Cambodia's strong economic growth in 2012. Outcomes exceeded expectations in agriculture, construction, and tourism. Further robust growth is forecasted, with the trajectory expected to steepen slightly in 2014 with recovery in major export markets. Inflation subsided in 2012 and is projected to remain modest through the forecast period. Although poverty has declined, persistently high

[1] Source: Cambodia National Statistics Year Books 2011.

child malnutrition remains a critical development challenge.

Cambodia's gross domestic product (GDP) grew by 7.2 percent in 2012, driven by robust consumption and investment. Consumption expanded by an estimated 9.5 percent and made the biggest contribution to GDP growth from the demand side. Gross fixed investment increased by 30 percent, spurred by a surge in FDI and higher bank lending. However, net exports dragged on GDP growth as they fell, partly reflecting elevated imports needed for power-generation projects. Economic growth is forecasted at 7.2 percent in 2013, and rising further to 7.5 percent next year as recovery in Europe and the United States takes hold (ADB, 2014).

Meanwhile, the ASEAN connectivity becomes key to ASEAN member countries' move towards realizing the ASEAN Economic Community 2015 and beyond. However, the ASEAN still faces several obstacles in all three pillars of connectivity—i.e., physical, institutional, and people-to-people connectivity. Initiatives on attaining physical connectivity are mainly governed by the Master Plan of ASEAN Connectivity (MPAC) document that lists several prioritised projects. Because the progress has not increased in pace, the ASEAN established The ASEAN Connectivity Coordinating Committee (ACCC) in 2011. The ACCC is tasked to coordinate and oversee the effective implementation of the Master Plan.

One of the main problems in the MPAC implementation pertains to financing. One may attribute this to lack of funds, and rightfully so if one is to gauge such from a country's budget for infrastructure development. However, there are non-dedicated funds that are deemed large enough be used to finance infrastructure. They can also come, for instance, from capital markets, savings, international financial institutions, pension funds, and bonds.

As one of the ASEAN member states, Cambodia has an obligation to support infrastructure development within the ASEAN. This country study aims to assess how Cambodia's fiscal situation and policy, with emphasis on financing infrastructure, can contribute to greater people-to-people connectivity in the ASEAN and beyond.

Current Infrastructure Development Situation

Along with the peace and political stability as well as support from the international community that Cambodia now enjoys, its infrastructure has been growing remarkably. National and provincial roads have been rehabilitated and asphalted, bridges constructed across main rivers and streams, and railways repaired and upgraded. The same development trend has been observed in other infrastructure sectors.

Such development is not without its negative impact as well. The impact may be seen in the increase in road accidents and in overloaded transport vehicles and poorly maintained infrastructure. The government, though, had taken measures to tackle these problems seriously.

To frame its development plan, the Royal Government of Cambodia implemented the second stage of its Rectangular Strategy for Growth, Employment Equity and Efficiency - Phase II (The Strategy). Entitled "Future Rehabilitation and Construction of Physical Infrastructure", the second phase (Figure 2.1) has four components: (1) further rehabilitation and construction of transport infrastructure; (2) water resources and irrigation system management; (3) development of the energy sector; and (4) development of information and communication technology (ICT) (Royal Government of Cambodia, 2008). To implement the strategy, a five-year plan called “National Strategic Development Plan Update 2009-2013" (NSDP) was adopted.

Figure 2.1: Rectangular Strategy-Phase II

As stated in the strategy and plan, the government believes that a functioning physical infrastructure is a pre-requisite for sustained economic development, growth, and poverty reduction. The depth and diversity of the physical infrastructure influences not only the pattern of growth; any lack of it prevents access to health and education, trade liberalisation as well as access to local, regional, and international markets. The government's key physical infrastructure priorities include repair, maintenance and upgrade of the road network from national to rural levels, improved water supply and sanitation, creation of an efficient power sector, rural electrification, and better telecommunications.

Infrastructure in Cambodia is still in its early stage of development because of several challenges: a long protracted war and political strife for about two decades, poor physical infrastructure, inadequate legal framework, lack of a strategic plan, inadequate infrastructure maintenance, and shortage of financial resources.

Cambodia's underdeveloped transport sector, specifically, constrains regional integration as well as regional and global trade, and therefore holds back

economic development and poverty reduction. The strategic challenges in the transport sector pertain to the lack of connectivity to services and markets, resulting in lost economic opportunity; high operating, maintenance, and logistics costs; lack of competitiveness; and unsafe and unsustainable infrastructure (ADB, 2011).

Because of these weaknesses in the transport sector, Cambodia faces difficulties in implementing the various ASEAN agreements and protocols for the sector. The main roads in Cambodia's part of the proposed regional corridors are sub-standard and comprise only of two lanes. The railway system, too, needs more time and funds for upgrade and expansion.

So, too, are the subordinate infrastructure, including rural roads and rural market places, in poor condition. Traffic violations, poor road conditions, and lack of traffic signs all add up to high fatalities in road accidents.

Meanwhile, the electricity supply in most parts of the country is still very expensive, which takes its toll on production for local consumption, import substitution and export.

The Asian Development Bank (ADB) is Cambodia's leading development partner in the transport sector. Others are the Japan International Cooperation Agency (JICA) (for ports, highways, bridges, and technical assistance to the Ministry of Public Works and Transport [MPWT]) and the World Bank (for highways, provincial roads, and technical assistance to MPWT). Japan Bank for International Cooperation (JBIC) recently started operations in Cambodia and is implementing its first lending pipeline to the country (for ports, energy, and special economic zones). The Mekong River Commission is driving a program to improve navigation along the Mekong River, which will help modernise inland water transport. The People's Republic of China, Republic of Korea, Thailand, and Viet Nam are all providing assistance to rehabilitate roads, especially those connecting to towns at border areas (ADB, 2009). China is also increasingly providing assistance for highway construction, energy, and currently studying the feasibility of a new railway line from Phnom Penh to Ho Chi Minh City.

1.1. Roads

Figure 2.2 shows the entire road network in Cambodia. Most of the national road networks have been rehabilitated and are now in good condition. In contrast, the provincial and rural road networks are in disrepair due to many years of limited investments and neglect.

By 2013, Cambodia's road network measured approximately 11,618 km, of which only 4,100 km or 35.29 percent was paved (Table 2.1). In addition, there are tertiary roads or rural road network of approximately 33,005 km under the responsibility of the Ministry of Rural Development (MRD).

No divided expressway exists yet in Cambodia. The strategic National Road No. 4 that connects the capital of Phnom Penh to the coastal hub, the Sihanoukville International Port, has adopted the public private partnership (PPP) approach in its Build-Operate-Transfer (BOT) arrangement, with private company AZ Group overseeing the operations and maintenance (CDC, n.d.).

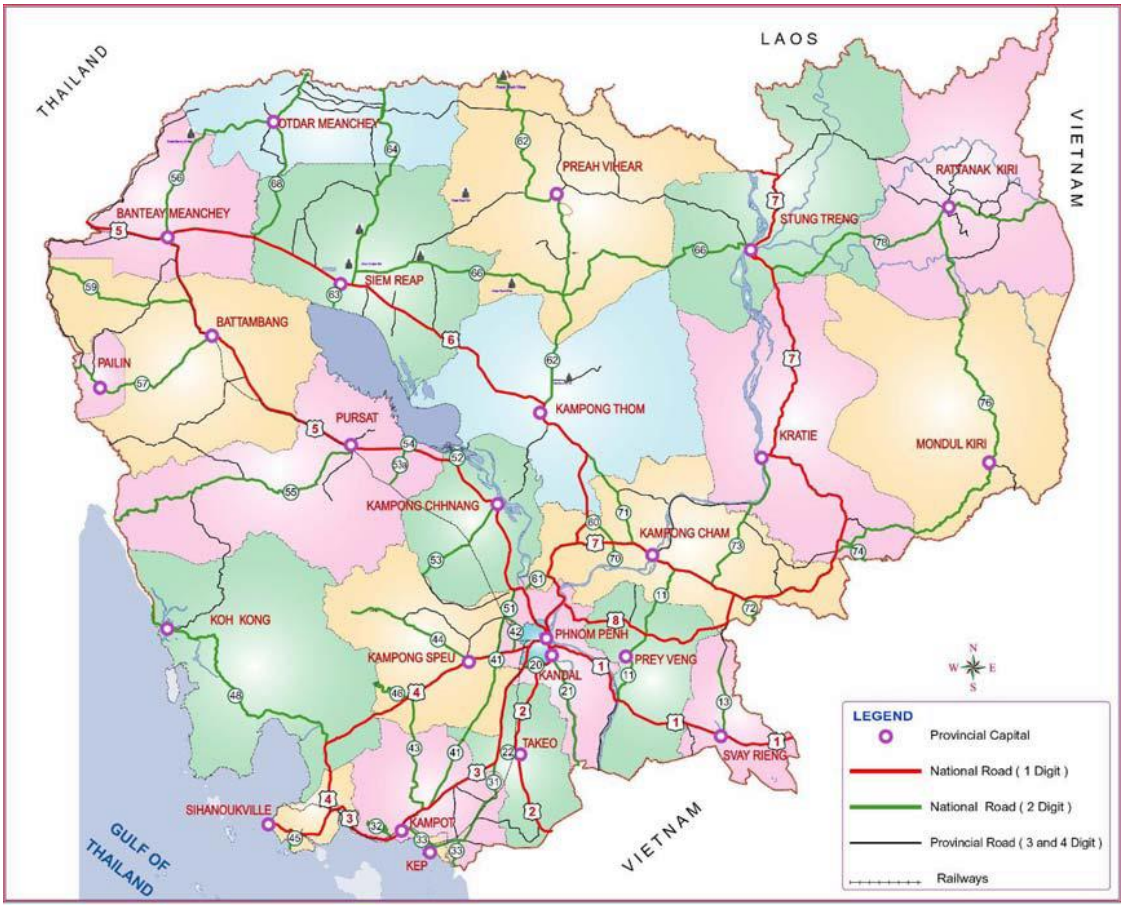
Meanwhile, there are six bridges across the Mekong River. More bridges are planned to be built across the Mekong River, Sab River, Basac River and other streams and other tributaries.

Table 2.1: Planned Transport Indicators

Indicators	Unit	2008	2009	2010	2011	2012	2013
Primary and Secondary Roads	Km	11,494	11,494	11,618	11,618	11,618	11,618
Of which: Paved Road	Km	2,342	2,661	2,781	2,800	3,500	4,100
Railways	Km	650	650	650	650	650	650
International Ports	No.	2	2	2	2	2	2
International Airports	No.	2	2	2	2	2	2
Domestic Airports	No.	9	9	8	8	8	8

Source: NSDP Update 2009-2013.

Figure 2.2: Road Network in Cambodia



Source: IRITWG, 2009.

1.2. Sea Port

Cambodia has only one deep seawater port in Sihanoukville of Peah Sihanouk province. At present, the total operational land area of the Sihanoukville Autonomous Port is around 124.76 ha. The port has expanded steadily and now has 12 berths equipped with modern cargo handling facilities. It has two channels; namely, the South Channel (length 5.5 km, depth 8.4 m, width 80-100 m) and North Channel (length 1 km, depth 10 m, width 150-200 m). Details on the port's current situation are shown in Tables 2.2 to 2.6, and Figures 2.3 and 2.4 (CDC, n.d.).

Table 2.2: Berthing Capacity of Sihanoukville Port

Terminal	Length (m)	Depth (m)	Berths	Use
New Wharf	350	-9.0 (-10.50)	2	Medium size vessels
Container Terminal	400	-10.50 (-11.50)	3	Medium size vessels
General Cargo	290	-8.40	2	Inner berth of old jetty
Passenger Terminal	290	-8.40	2	Outer berth of old jetty
Sokimex	200	-10.00	1	Oil jetty
Pontoon	110	-6.00	1	Oil jetty
Stone Wharf	53	-4.50	1	Oil jetty
Total	220	-7.10	1	Oil jetty

Although the container cargo throughput volume of the Sihanoukville Port increased steadily until 2008, it sharply dropped in 2009 mainly because of the reduced garment export to US and EU markets affected by economic issues from 2008. General cargo throughput also decreased in 2009 due to lesser imported construction materials caused by the sluggish domestic real estate market. The container throughput returned to its growth track when the garments export started increasing in 2010. Similarly, the general cargo throughput sharply increased in 2010 and surpassed the peak volume recorded in 2008. The importation of construction materials surged throughout the year due to various large-scale development projects and factory constructions.

The Sihanoukville Port Special Economic Zone, which occupies 70 ha of the Port Authority's land adjoined to a container terminal of the Sihanoukville Port, was completed at the end of 2011 via Japanese soft loans since October 2009. Investors started building factories within the facility in November 2011.

Six offshore oil fields are either being developed or for development offshore of Sihanoukville Port. With assistance from JICA, a new multi-purpose terminal, which will consist of a supply base for these offshore oil fields and a handling area for heavy materials such as wood chip or coal has now completed

its detailed design. Such terminal is estimated to cost more than US$75 million, financed by the Japanese government, and built inside the port this year (Phnom Penh Post, 2013).

Besides the Sihanoukville Autonomous Port, other smaller ports are Sre Ambel Port, Kampot Port and Oknha Mong Port. Among these, Oknha Mong Port is the hub for imported, smaller general cargoes. Kampot Port is now undergoing expansion, while Kirisakor of Koh Kong has an expansion plan for sugar transportation. There are also plans to develop new ports in Kirisakor of Koh Kong Province (Deep seawater port), Steung Hav of Prea Sihanouk Province (International port), and Kep Province (Tourist port).

Table 2.3: Cargo Handling Facilities of Sihanoukville Port

Type	Capacity	Quantity (Unit)
Mobile Harbour Cranes	60 t	2
Quay Gantry Cranes	30.5 t	2
Rubber Tired Gantry Cranes	35.5 t	5
Trans-tainer Cranes	40.6 t	2
Super Stackers	45 t	8
Empty Stackers	7.5 t	2
Trailers	20’ – 40’	34
Shore Cranes	10t – 50 t	7
Forklifts	3t – 25 t	21
Trucks for General Cargo	10t – 20 t	10

Table 2.4: Storage Facilities of Sihanoukville Port

Terminal	Size (㎡)	Capacity	Quantity
New Container Terminal	64,000	4,560 (TEUs)	1
Laden Container Terminal	35,000	72,200 (TEUs)	1
Empty Container Terminal	46,000	3,000 (TEUs)	1
Warehouse	36,000	70,500 tons	5 blocks
Reefer Container			54 socket

Table 2.5: Cargo Throughput of the Sihanoukville Port

	2006	2007	2008	2009	2010	2011	2012
Total cargo throughput (thousand tons)	1,586.8	1,818.9	2,058.0	1,874.1	2,217.2	2,378.0	2,658.8
Container throughput (TEU)	231,036	253,271	258,775	207,861	222,928	-	
General cargo throughput (thousand tons)	197,573	193,572	291,114	241,494	374,801		

Figure 2.3: Actual and Estimated Number of Containers 2005 - 2013

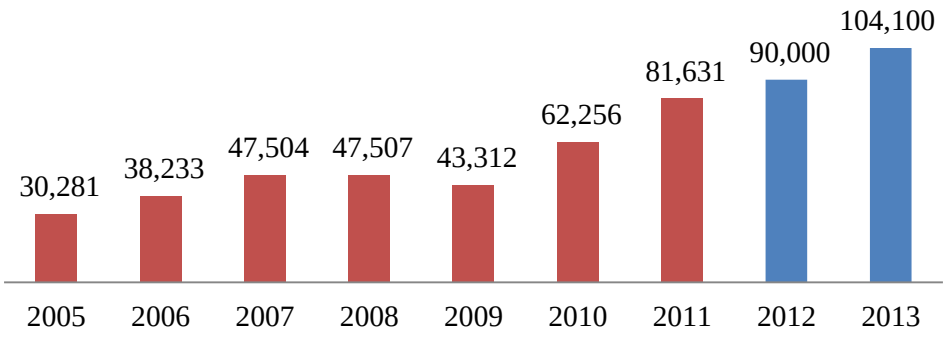
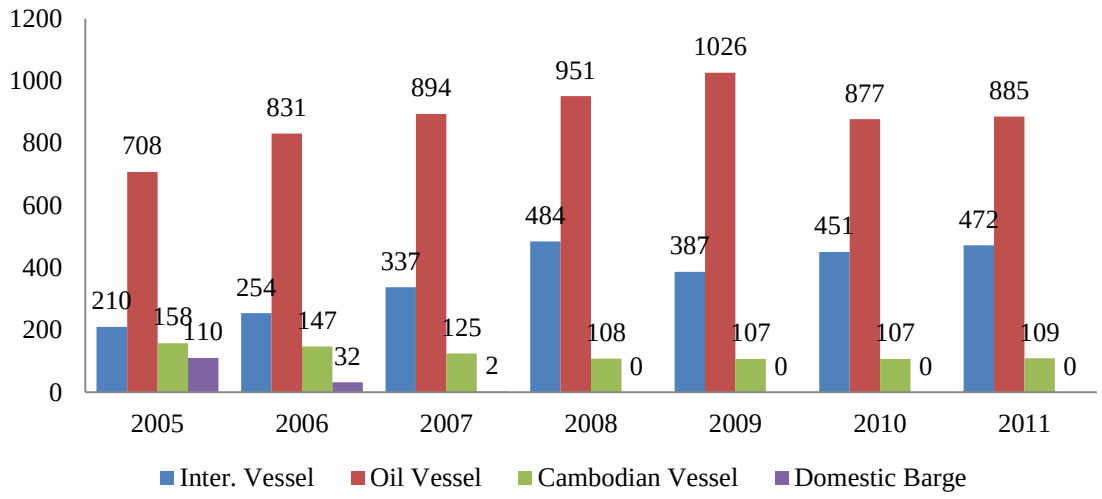


Table 2.6: Ship Calling Status in Sihanoukville Port (2009)

Lines	Frequency	Rotation Ports
MCC & CMA (8 calls/month)	2 calls/week (Thu & Fri)	SGN-SHV-LZP-SGN-HKG-OSA-TYO-YOK-KOB-SGH-YAT-SGN SIN-SHV-TPP-SIN
Cots (2 calls/month)	2 calls/month (Monday)	BKK-SHV-BKK-(LZP)
RCL (12 calls/month)	3 calls/week (Wed., Thu., Fri)	SIN-SHV-SGZ-SIN HKG-SHV-SGZ-HKG-(HPH-TXG-KEL) KUN-SHV-SGZ-SIN-KUN
ITL (ACL) (4 calls/month)	1 call/week (Sat)	SGZ-SHV-SIN-SGZ
APL (4 calls/month)	1 call/week (Fri)	SIN-SHV-SIN
Total		30 calls/month

Figure 2.4: Ship's Movement 2005 – 2010



1.3. Phnom Penh International Port and Inland Ports

The Phnom Penh Autonomous Port (PPAS) is located about 100 km from Kaam Samnar of the Cambodia-Viet Nam border and about 332 km from Cuu Tieu, an entrance mouth to the South China Sea. It has one local terminal that serves as the base for the distribution or collection of goods to/from many provinces. Major ports along the inland water are:

- Stung Treng Port (Stung Treng Province): On the mainstream of the Mekong 128 km up from Kratie Port

- Kratie Port (Kratie Province): On the mainstream of the Mekong 121 km up from Kampong Cham Port

- Tonle Bet Port (Kampong Cham Province): On the mainstream of the Mekong 106 km up from Phnom Penh

- Neak Loeang Port (Prey Veng Province): On the mainstream of the Mekong 60 km down from Phnom Penh Port

- Chong Khneas (Siem Reap Province) Port: On the Tonle Sap River 190 km up from Phsar Krom Port

- Phsar Krom Port (Kampong Chunang): On the Tonle Sap River 100 km up from Phnom Penh Port

Transport by inland waterways vessels through the Mekong River and its tributaries can provide access to markets and other necessary services for those who live in rural areas. Maximum navigable vessel size in the Mekong River basin is shown in Table 2.7. In recent years, however, the inland waterways' transport activities have decreased, except between Phnom Penh and Cai Mep of Viet Nam, as a result of an increase in road transport.

Table 2.7: Maximum Navigable Vessel Size in the Mekong River Basin

	Mekong Mainstream up to Phnom Penh	Tonle Sap, Phnom Penh to Siem Reap
Petroleum	Tanker barges 1,000 DWT/ Draught 4.0 m	
Container	Barges 1,900 DWT (120TEU)/ Draught 3.8 m	
General Cargo	Barges 1,500 DWT/ Draught 4.0 m	
Tourism Cruise Vessels	50-65 passengers Draught 1.5 m	50-65 passengers Draught 1.5 m
Speedboats	25 passengers Shallow Draught	25 passengers Shallow Draught

Source: Infrastructure and Regional Integration Technical Working Group (2010).

The Phnom Penh Autonomous Port (PPAP) accommodated 1,070 vessels (mostly small barges) and handled about 740,000 tons in 2005. Tanker barges

accounted for 65 percent of vessels in Phnom Penh Port. Currently, Phnom Penh Port's cargo handling capacity is 1 million tons of cargo or approximately 50,000 TEUs per year. In 2012, the port accommodated 1,493 vessels and 95,333 TEU compared to 81,631 TEU in 2011. In the first quarter of 2013, the volume of cargo (24,677 TEU) increased 25 percent over the same period in 2011 (18,450 TEU) (DAP News, 2013).

The port also handles international container cargoes. After operation of the Cai Mep deep water port in southern Viet Nam started in June 2009, some exporters from the Phnom Penh area began sending cargoes through the Mekong River to Cai Mep Port, then to the global markets, particularly to Singapore and the United States, as this is said to be cheaper and faster.

To meet the increasing demand, the Phnom Penh Port started on 9 March 2011 the construction of new container dock 30 km east of Phnom Penh, along the Mekong River and the National Road No. 1 in Kien Svay District of Kandal Province. This new container dock covers 10 hectares, can accommodate two 5,000-ton ships to anchor simultaneously and has an annual handling capacity of 120,000 TEUs. The project was financed by the Chinese government, constructed by Shanghai Construction Group and took 30 months to be completed. The new port is now fully operational.

1.4. Railways

The railway network in Cambodia consists of the northern line, southern line, and others lines:

1. *Northern line:* As built, the track on the northern line was laid with 30 kg/m rails on steel sleepers, and except where damage repairs have been carried out, the original track remains. The line has never been renewed and is designed for an axle load limit of only 10 tons. Most of the track is 60 years old or more, with the last 56 at the western end being some 50 years old. There are 167 bridges on the line, of which 46 have suffered mine or other war damage, and received temporary repairs. The speeds are restricted to 5-10 km/h at 30 bridge sites (IRITWG, 2010).

2. *Southern line*: The southern line was built with 43 kg/m rails on untreated wooden sleepers. Because only light traffic is allowed on the line since it was built as well as the weight of the rails, the rails themselves are in very good condition. There are 94 bridges, of which 15 are badly damaged. These have received temporary repairs. The line was built to accommodate axle loads up to 20 tons, but in present conditions a limit of 15 tons is practical.

The Royal Government of Cambodia issued sub-decree No. 163 dated 1 October 2009 to establish the Railway Department and placed it under the supervision and management of the MPWT.

The railway system has since been privatised. Its 30-year concession to manage and upgrade the Royal Cambodian Railways (RCR) was awarded to Toll Holdings, the joint venture between Australia (55% share) and the Royal Group (45%). Revenues are expected to be shared between the government and Toll Holdings once the railways become profitable. Toll Holdings is responsible for upgrading and expanding the network.

Future Development Plan. Cambodia is also considering a supplementary financing arrangement with the ADB and a grant from AusAID, which will fund the construction of a new station in Samrong (9 km from Phnom Penh) and the additional upgrade of the railway system, including the branch line to Green Trade Warehouse (6 km from Phnom Penh) and the northern line. According to the plan, the rehabilitation work will include the following and are to be completed in 2013:

- Update and implementation of the resettlement plan for Samrong (to be completed in mid-2010);
- Design and construction of new freight facility in Samrong (to be completed in March 2013)
- Design and construction of the new spur lines to freight terminals in Phnom Penh (to be completed in March 2013).

Another set of railway lines had also been envisioned:

- Tbaeng Meanchey (Preah Vihear) to Sihanouk Ville (through Kampong Thom, Skun, Batdeung, and Phnom Penh). The primary purpose of this rail is to export mine, particularly iron ore from the mineral rich province of Preah Vihear, to the world through Sihanoukville port.
- Sisophon to Siem Reap. The total length of this line is 105 km.
- Siem Reap to Skun through Kampong Thom, which measures 239 km long.
- Snuol to Lao P.D.R border through Kratie and Thalaborivat (Stung Treng) provinces. Its total length is 273 km.

1.5. Airports

The State Secretariat for Civil Aviation is responsible for the control, regulation, and orderly development of the civil aviation sector as well as the operation of domestic airports. At present, Cambodia has 10 airports, including international airports in Phnom Penh, Siem Reap, and Sihanoukville. The Phnom Penh and Siem Reap airports each handles about 1.4 million passengers per year. The civil aviation sector has undergone major changes to improve its compliance with international safety and security standards and to encourage private sector participation in operating the terminals.

Before the wartime (1970-1975), Cambodia had 19 airports, of which 18 served domestic travel. But so far, due to lack of maintenance and investment, most airports had been abandoned. Only three international airports—those in Phnom Penh, Siem Reap and Sihanoukville—are operational. Under a Build-Operate-Transfer (BOT) scheme for operation, management, and development and improvement of airport facilities, all three airports are operated by the private joint enterprise, Cambodia Airports.

Cambodia Airports has the French group's VINCI (70%) and the Malaysian-Cambodian joint venture Muhibbah Masteron Cambodia (30%) as shareholders. This joint venture is now a member of the network of international airports. With its workforce exceeding 1,200, Cambodia Airports is a key contributor to Cambodia’s economic development.

Phnom Penh International Airport has a 3,000-metre runway and is linked to many of Asia's regional hubs and by direct services. Siem Reap Airport has a 2,500-metre runway used both by domestic and international flights and caters more to tourists than cargo deliveries. Meanwhile, Sihanoukville Airport has just upgraded from a domestic to international airport. After all renovation and upgrades are done, it will become the country's biggest airport to transport air cargo and passengers for future development of commercial activities, especially to serve logistic bases and industrialised zones in the coastal areas. With increasing cargo and passenger flights, international airports and warehouses will facilitate transports and trade (Chap, *et al*., 2011). At present, the Sihanoukville airport also operates some domestic flights from Phnom Penh and Siem Reap.

1.6. Waterways

The country has 3,700 kilometres (2,299 miles) of navigable waterways. In fact, it is possible to travel to the famous Angkor Wat complex by jet boats using the Tonle Sap River and the great Tonle Sap Lake. As far as inland waterways are concerned, Kampong Cham is one of the most important centres in Cambodia, as it is situated between two main trading routes: the north-south route along the Mekong (from Lao PDR to the sea), and east-west route between Thailand and Viet Nam (along the historic route via Siem Reap). It is an important centre for rubber plantations.

Much of the transport to and from Phnom Penh is by river. Through licenses and bidding, private sector operators are allowed to run small ports and ferry services along the main rivers and tributaries.

1.7. Energy

From 2008 to 2012, the electricity consumption indicates a two-fold increase from 487,426 to 980,388 households (Table 2.8). Due to the rapid increase in demand, the country has significantly increased its available supply of electricity and expanded its electricity network. To guide the development of the energy sector, the Energy Sector Development Plan 2005-2024 was adopted.

A Rural Electrification Master Plan focusing on the use of renewable energy has also been prepared and is being implemented. Some of the major improvements include:

- A 115 kV-transmission line from the Thai border, to supply electricity to Banteay Mean Chey, Siem Reap, and Battambang Provinces (This has been completed and is fully operational);
- Two 370 KW-microhydro power stations (O Romis and O Mleng) and a reserve;
- Fully operational 300 KW-diesel-powered generator that supplies electricity to the provincial town of Mondulkiri;
- A 230 kV-transmission line (110 km), from Cambodia-Viet Nam to Phnom Penh, and Takeo Sub-station (fully operational since early second quarter of 2009); and
- A 115 kV circuit of 23 km added in Phnom Penh and a sub-station installed in the western part of Phnom Penh in 2009.

As part of the Rural Electrification Policy, the government established the Rural Electrification Funds to promote equity in access to electricity supply services and to encourage the private sector to invest in rural power supply services in a sustainable manner, particularly on new technologies and renewable energy.

Meanwhile, to enhance regional cooperation, Cambodia participates in the implementation of the Greater Mekong Sub-region's (GMS) Power Trade Plan as well as the realisation of the ASEAN Power Grid.

Cambodia has a huge potential for hydro power generation (at about 10,000 MW) but at present, only about 3 percent of the total capacity has been used.

Table 2.8. Energy Statistics in Cambodia

	Unit	2008	2009	2010	2011	2012	2013
Electricity Generated	Million kWh	1,858	1,882	2,488	2,489	2,862	3,292
Household consumers	No.	487,426	560,539	644,621	741,314	852,511	980,388
Per-capita consumption/year	kWhs	139	135	153	174	197	224
Transmission line network (22 kV)	km	1,450	1,595	1,914	2,201	2,531	2,911
Transmission line network (115 kV)	km	323	353	353	476	547.5	547.5
Transmission line network (230 kV)	km	0	100	100	269	1,182	1,407

Source: NSDP Update (2009-2013).

1.8. Telecommunications

Table 2.9 presents the projected state of telecommunications in Cambodia, according to the NSDP Update (2009-2013).

Table 2.9: Telecommunication Statistics in Cambodia

	Unit	2008	2009	2010	2011	2012	2013
Telephones in use (land & mobile)	000's	4,143	6,447	7,100	7,700	8,300	8,900
Internet users	No.	20,108	291,413	350,000	400,000	450,000	500,000
Rate of post service users	%	0.36	0.38	0.4	0.42	0.44	0.46
Clients per station	No.	161,445	163,932	140,968	125,256	111,286	101,147

Source: NSDP Update (2009-2013).

The telecommunications sector in Cambodia is rapidly developing. Although the country has a largely rural population (only 20% live in urban areas), its 15 million inhabitants are pioneers of the mobile web. Recently, Cambodia was recognised as the first country in the world to claim more mobile phones than landlines (Kemp, 2012).

A new infographic report from WeAreSocial reveals that almost one-quarter of the entire nation's internet activity comes from mobile phones. According to the same report, mobile subscribers nearly doubled such that there is now a 131-percent mobile penetration. As for 3G technology, a very encouraging 3.25 million had signed up to the quickest mobile data on offer, which is a solid 16.5 percent of all mobile subscriptions. The number of internet users has leapt by an even more extraordinary 548 percent, as there are now 2.47 million users connected online. This is likely due to seven new internet service providers coming online in 2011 as Cambodia's infrastructure slowly modernises (Millward, 2012).

1.9. Expected Outcomes from the Infrastructure Development

According to a JICA study (2002), Cambodia is expected to obtain the following benefits from infrastructure development:

- Road development will secure year-round access to all isolated areas near the borders with Thailand, Viet Nam, and Lao PDR and strengthen the governance by providing better administrative services to the people. This development will also enhance Cambodia's industrial and economic coordination with other areas in other provinces and neighbouring nations.

- In a 2006 report, JICA calculated the economic effect of road network development in both 2010 and 2020 under the assumption that all road projects were carried out in accordance with the master plan. The resulting economic benefit was US$221 million in 2010 and US$515 million in 2020. The cumulative economic benefit in over 15 years is estimated to be between US$3,800 million and US$4,200 million, and the benefit/cost ratio is 1.62, which is a comparatively good road investment.

- Once all railway and inland waterway problems in Cambodia are completely resolved, the following economic and socio-environmental effects can be anticipated:

  - Lesser damage to or deterioration of paved roads brought by heavyweight vehicles and lower road maintenance cost;

  - Alleviation of traffic congestion of trunk roads;

  - Mitigation of environmental risks (such as air and noise pollution) along trunk roads;

  - Decrease in traffic accidents; and

  - Economic benefits from reduced fuel consumption.

- Infrastructure helps poverty reduction in a number of ways:

  1) Infrastructure strengthens economic growth by increasing employment opportunities, and improving public health and education.

2) It facilitates delivery of a number of basic needs: water for drinking; power for cooking, heating and lighting; telephones to interact with others living in distant locations; and transport, which allows mobility.

3) Adequate rural infrastructure is a *sine qua non* for successful rural transformation and agricultural development. Providing access to these basic services is an important aspect of poverty reduction.

4) Infrastructure plays an equally prominent role in increasing employment and incomes of the poor. Total revenue is higher among those with access to roads than those without. For example, roads and railways increase access to employment, health and education for the poor, who normally live in places far from economic hubs and social facilities.

5) Roads give access to input and output markets, thus lowering costs and enhancing revenue. These also facilitate connectivity to wider employment opportunities in other villages or in urban areas. According to the World Bank report, "Sharing Growth: Equity and Development in Cambodia" (2007), household incomes in villages with an all-weather road connection have typically twice the incomes of villages without a road. Thus, infrastructure development, especially transport development in general and road development in particular, can be highly effective in combating poverty and in reducing inequality in Cambodia.

- Many research studies make it clear that the availability of quality physical infrastructure improves the climate for FDIs as it reduces foreign investors' cost of total investment, thus raising the rate of return. Both the quantity and quality of physical infrastructure are often important considerations in multinational enterprises' choice of FDI locations. Following this logic, it is almost certain that infrastructure development will also “crowd in” domestic private investment. Therefore, the availability of infrastructure is crucial in enabling Cambodia to participate in international trade, especially with neighbouring countries.

- Infrastructure development can also attract a large number of tourists. In particular, tourism is an important sector in Mekong countries. The most obvious and tangible benefits of tourism include income, foreign exchange earnings, tax revenue, and employment generation. Of the Mekong countries,

Cambodia is the most dependent on tourism income, as this is around 12 percent of its GDP (Kaosa-ard, 2006).

Sources of Infrastructure Financing

For its infrastructure development and financing, the government of Cambodia has formulated the five-year National Strategic Development Plan (NSDP), and the rolling three-year Public Investment Plan (PIP). The last NSDP update (covering the years 2009-2013) was approved by the Council of Ministers and adopted by the National Assembly on 31 May 2010. Meanwhile, the PIP 2013-2015 was adopted during the Council of Minister meeting (or cabinet meeting) on 18 January 2013. It does not necessarily have to be approved by the National Assembly.

The regulation instruments on infrastructure financing are:

- NSDP Update 2009-2013
- PIP 2013-2015
- National Budget
- Law on Investment
- Law on Concession
- Law on Appropriation
- Swap arrangements

Meanwhile, the stakeholders or actors in infrastructure financing include:

- Royal Government Agencies: Ministry of Planning (lead), Ministry of Economy and Finance, Supreme National Economic Council (SNEC), Council for Development of Cambodia (CDC), Cambodia Reconstruction and Development Board (CRDB) for public investment, Cambodia Investment Board (CIB) for private investment and PPPs.

- Development Partners (Donors): World Bank, ADB, United Nations agencies, bilateral donors, and others.

1.10. National Budget

Cambodia's national budget in 2012 was 10,767,982 million riels (US$2.62 billion). This was an increase of about 9 percent compared with 2011's US$2.4 billion (Xinhau, 2011). According to the budget rules, the government can borrow up to 700 million SDR (Special Drawing Rights), or US$1.09 billion, in 2012 from foreign countries. Currently, Cambodia's debt to foreign countries is only 29.1 percent of its GDP. In 2011, its GDP was US$11.4 billion.

In 2012, the budget plan mainly focused on general administration, national defence and security, social affairs, and the economic sector.

For 2013, Cambodia's National Assembly approved a budget of US$3.1 billion for government spending, up from the previous year's US$2.6 billion. In the same year's budget, the expected expenses account for 19.8 percent of the country's GDP of about US$15.6 billion. Here, government spending aims to ensure that economic growth is sustained at around 7 percent and poverty is reduced by at least 1 percent a year. According to its Ministry of Economy and Finance’s estimation, Cambodia's per-capita GDP will surpass US$1,000 in 2013, up from US$909 in 2011.

Cambodia's infrastructure financing is also covered by the PIP. Table 2.10 shows the program's projected public investments for 2013-2015.

Table 2.10: Planned Expenditure of the PIP 2013-2015

Expenditures	Million US$
Total planned expenditure in PIP (2013-2015)	**4,938.9**
- Ongoing projects	2,363.1
- Planned Projects	2,575.8
Amount of resources that ministries have reported as committed	**2,732.7**
- By Royal Government of Cambodia	593.9
- By Development partners	2,138.7
- For Ongoing projects: Total commitment	1,989.8
- Royal Government of Cambodia	372.2
- By Development partners	1,617.5
- For planned projects: Total commitments	742.9
- Royal Government of Cambodia	221.6
- By Development partners	521.2
- Additional resources required (in addition to committed funds) for implementing	2,206.2
- Ongoing projects	373.3
- Planned projects	1,832.8

Source: PIP (2013-2015).

1.11. Donors or Development Partners

The government conducts government-donor meetings, which are coordinated by the Cambodia Reconstruction and Development Board (CRDB) every six months to mobilise assistance. At these meetings chaired by the prime minister, government representatives present their real needs by sectors, and donors

pledge assistances according to their areas of interests and/or express their concerns on the cooperation process or project implementation.

The assistance can also be "donor-driven". Here, donors initiate the development projects and feasibility studies themselves and include the projects into the agenda of the donor-government meetings.

Bilateral assistance from neighbouring countries usually served the interests of the partner countries such as in the case of road projects that can connect peoples at border areas and promote cross-border trade.

The PIP preparation is led by the Ministry of Planning, which compiles paper-based submissions or online submission of project proposals and coordinates with various government agencies, where needed.

1.12. Public-Private Partnership (PPP)

In Cambodia, private sector participation is increasingly becoming important in infrastructure development although it is not a new feature. Because of the huge growth in power supply, the government sought more options to finance its infrastructure requirements. It created conditions that encouraged private sector participation and pushed for a transparent competition, offering the best incentives to companies that can provide the most effective-cost and reliable energy.

The mode of participation of private investors, particularly for significant projects, follows the new approach on private investment projects—that is, through a one-stop service provided in a transparent manner. The government has put in place a new legal, institutional and regulatory framework, especially the Investment Law 2003, and gives incentives to investors via the following measures:

- Well organised authorisation system for permits, consents, approvals, and licences;
- Investment in the power sector will be carried out through a competitive procurement processes, particularly in unserved areas;

- A purchasing mechanism that will minimise rural electrification enterprises' costs, especially in isolated areas; and provision of technical assistance and financial incentives to such private rural operators so as to improve their efficiency, quality service, and consumer coverage;

- Ability to realise fair rate-of-return on investment.

The Private Sector Forum, a bi-annual dialog between the government and the private sector, and consisting of seven working groups that include the infrastructure and energy group, has been organised precisely to encourage the private sector's participation in the energy sector.

The Public-Private Infrastructure Advisory Facility, a multi-donor technical assistance managed by the World Bank, also encourages private sector participation in the energy sector based on transparent competition. A sub-decree on procurement was adopted for this purpose, to clarify the rules for private participation, and the roles and responsibilities of public sector, and to establish a transparent and efficient procurement process.

The adoption of the sub-decree can be traced as far back as the early 1990s, where small private operators were involved in the distribution of electricity. Realising that this approach can improve the country’s overall infrastructure facilities, a sub-committee on Private Partnership in Infrastructure (PPI) was created as part of the overall organisational framework of the Private Sector Development Steering Committee in 2006 under the chairmanship of the Ministry of Economy and Finance. Following deliberations, a PPI policy paper was issued describing the PPI policy and its underlying principles; roles and responsibilities of various agencies of the government with respect to PPI projects; and process for identifying and implementing PPI projects. While the policy paper provided a framework and an excellent base for developing the PPP program, it has never been put into operation or adopted as a formal policy.

Notwithstanding this, PPP continues to be given emphasis under the country’s economic development strategy. The current National Strategic Development Plan has clearly identified it as one of the key policy priorities. For Cambodia, PPP is an important method to augment the public sector infrastructure program, both in terms of financing as well as managerial and technical competencies. In the power and telecommunication sectors, private participation has

contributed towards greater efficiency in project development and service delivery. This scenario is unlike the PPP strategy in more developed economies where PPP is seen as an alternative public procurement method. The rationale is obvious. With severely limited public financial resources, the option for the Cambodian government is not determining how projects should be funded but choosing between having the project and not having it at all.

In general, PPP in Cambodia is undertaken as an investment activity under a Qualified Investment Project (QIP)—i.e., an investment project for which a Final Registration Certificate has been issued by the Council for the Development of Cambodia pursuant to the Law on Investment. Public-private partnerships are contractual arrangement between the government and the private sector. Under such arrangements, the private sector agrees to provide infrastructure and related services in exchange for project revenues and government support. Government support will vary for each project, and can range from contingent government obligation guarantees for limited political risks, to direct fiscal offtake obligations under build-operate-transfer (BOT) contracts.

The private sector's participation in infrastructure development via PPP approach also falls under the purview of the Law on Concession (2007). The law lists the following sectors as eligible for concessions:

1) Power generation, transmission and distribution;
2) Road, bridges, rail, airport, seaport and canal transportation facilities;
3) Water supply and treatment;
4) Sewerage and drainage;
5) Irrigation and agriculture-related investment;
6) Solid waste management;
7) Health, education and sport facilities;
8) Oil and gas; and
9) Telecommunication facilities.

Projects that fall under the Law on Concession require approval from the Council of Ministers. The law also states that contracts should be signed within six months from the award date, and the successful bidder has to set up a local special purpose vehicle (SPV) to implement the project. While the necessary approval on technical aspects of project implementation need to be obtained from relevant government agencies, the focal point for project submission is

The Council of Development for Cambodia (CDC). Apart from being the approving authority for fiscal incentives, the CDC is also responsible for reviewing submissions for concession, supervising project preparations and developing capacity within the public sector.

Although the Law on Concession was already enacted by the National Assembly in 2007, its enforcement is pending government's approval on a related draft sub-decree that contains details on how to operationalise such law. Meanwhile, PPP projects are being considered as ordinary private investments, and their approval process is based on prevailing Investment Law. In particular, those with capital expenditures of more than US$50 million require approval from the Council of Ministers, while those between US$2 million and US$50 million have to obtain the approval of the CDC. For projects less than US$2 million, approval is given by the Provincial-Municipal Investment Committee.

Despite the lack of a specific legal framework to support the PPP program in the past, the private sector's participation in infrastructure projects had been quite impressive. This goes to prove that the environment need not have to be completely ideal for the private sector to commit its resources. When there are clear directions on where the country is heading, investors would look at long-term prospects of a venture and may find that a less-than-perfect environment is actually the best time for entry. Hence, over the period 1990 to 2011, 30 PPP projects had been approved for implementation. The large increase occurred after 2006, following signs of a strong uptrend in economic growth (i.e., reaching 13.3% in 2005 from under-7 percent in 2002), political stability and continuing positive investment climate. PPP on energy accounted for 53 percent of the number of projects and 70 percent of the total investment value.

Most project contracts are mainly structured as Build-Operate-Transfer (BOT) arrangements. However, there are many other projects structured differently such as the Operations and Maintenance type or the Build-Operate-Own (BOO) scheme for small operators. So as to make the ventures attractive and financially viable to the private sector, power-sector IPP projects incorporate take-or-pay provisions while the transport sector includes an exclusivity clause in the concession agreement. Among telecommunications PPPs, projects are structured as joint ventures.

One interesting feature of Cambodia's PPP industry is the presence of a

significant number of small PPP operators. These small operators are concentrated in the power and water sectors. Those in the power sector are involved in the generation as well as distribution of power, providing electricity to areas not served by Electricite du Cambodge. They are licensed by provincial authorities.

In the water sector, private operators are licensed by the Ministry of Industry, Mining and Energy - Department of Portable Water Supply and operate under contracts structured as BOT, BOO, leases, or concessions.

Funding of PPP projects are mainly via foreign direct investment (FDI), owners' equity, and user charges and, in the case of small operators of electricity distributors, borrowings from family members. As indicated earlier in this paper, the local banking industry has limited capability to finance small infrastructure projects. Meanwhile, foreign banks operating in Cambodia are focusing their business on existing clients only.

At present, there is no centralised body to provide policy guidance, supervise, manage and promote PPP programs. All these are very much left to individual agencies responsible for specific infrastructure types. Furthermore, projects tend to be issued on a reactive, unsolicited and negotiated basis as this can speed up project execution. Given this situation, it is not clear how the value for money is optimised or, simply put, whether any considerations have been given to it.

However, when viewed from the perspective that PPP is an avenue to address infrastructure deficit in an environment of budgetary constraint, the achievement to date is laudable (See Table 2.11 for Ongoing Transport Sector Capital Investment Projects). This can be attributed to several factors. The first and foremost factor is the positive investment climate, which helped draw foreign investors to participate in the growth and development of the Cambodian economy, including committing their resources to infrastructure development. The country has taken bold steps to liberalise its economy since the mid-1990s and followed that with investment-friendly measures. These factors complemented Cambodia's existing fundamentals such as strategic location, untapped and underutilised manpower resources and political stability.

Second, there is the strong political commitment and support from the highest level of the government towards private participation in infrastructure

development. This can be seen from the fact that important infrastructure projects are deliberated and approved at the Council of Ministers. Once the projects are agreed, the implementation is facilitated by CDC, which reports to the prime ministers.

Third, the untapped power resources and the huge potential demand are strongly attracting investors in the sense that risks on the offtake tend to be manageable. The willingness of the government to share the risk in the form of a take-or-pay provision also contributes towards a successful project execution.

Fourth, the country capitalises on efficiencies and shares the gains from such in terms of lower user charge. The telephony service is perhaps the best example on this. By using mobile phone technologies, investment costs in the telecommunications service are drastically reduced and subsequently make the service more affordable to the general public. On the other hand, one can imagine the implications if the country persists on expanding its fixed landline services. This requires huge financial outlay, but would likely not reach the penetration level seen today. In the case of electricity, tapping the hydro power resources and expanding the transmission network to areas currently served by inefficient private small operators will reduce the tariff substantially and thus, make PPP schemes acceptable to the general public.

Finally, multilateral agencies as well as international non-governmental organisations (NGOs) are willing to commit financial resources as project partners. This gives private corporations greater confidence to participate in infrastructure projects. For private companies, the knowledge they gain about the country from partners such as the ADB is extremely useful and, in fact, far superior than what can be provided by, say, ratings agencies.

Table 2.11: Ongoing Transport Sector Capital Investment Projects

Item	Development Partner	Project	Date		Amount ($ mil.)
			From	To	
Roads					
1	Viet Nam	Improvement of NR78	2007	2009	25.8
2	ROK	Reconstruction of NR3	2008	2011	37
3	JICA	Improvement of NR1	2003	2012	68
4	ADB and OPEC	GMS improvement of NR5 and NR6	2005	2010	77.5
5	PRC	Rehabilitation of NR76	2008	2012	52
6	PRC	Rehabilitation of NR62	2009	2012	52.6
7	PRC	Rehabilitation of NR57	2008	2012	42
8	World Bank	Provincial and Rural Infrastructure Project	2004	2009	16.6
9	Thailand	Rehabilitation of NR67	2007	2010	32.5
10	PRC	Prek Tamak O Raing Ao-Anlung Chey road	2007	2011	77.5
11	ADB	Southern Coastal Corridor Project	2008	2012	18
12	ADB, World Bank Australia	Road Asset Management Project	2008	2013	58.8
13	PRC	Rehabilitation of NR62 and provincial road No. 210	2008	2012	57
14	PRC	Reconstruction of NR78	2008	2011	55
15	Kuwait	Rehabilitation of Thmor Korl-Bavet-Sampov Lun	2010	2012	58.8
16	ADB	Northwest Provincial Road Improvement Project	2009	2012	33
17	RGC	Rehabilitation of NR68	2009	2012	54

18	ROK	NR31, NR33, and Provincial Road N117 Kampot	2009	2012	35
Railways					
1	ADB, Malaysia, OPEC, RGC	Rehabilitation of the railway in Cambodia	2008	2010	73
Major Bridges					
1	JICA	Construction of Neak Loeung Bridge	2011	2015	134
2	PRC	Construction of Prek Tamak Bridge	2007	2010	43.5
3	Viet Nam	Construction of Chrey Thom Bridge	2009	2011	22.7
4	PRC	Construction of Prek Kdam Bridge	2007	2010	29
Shipping Ports					
1	JICA	Sihanoukville port duty free zone, Stage 1 and Stage 2	2006	2012	38
2	JICA	Renovation of Sihanoukville Quay II	2006	2009	40
3	JICA	Sihanoukville east port for offshore petroleum	2009	2015	67
Other					
1	ROK	Siem Reap sewage system	2009	2012	44
2	ADB	GMS Mekong tourism development project	2006	2009	10

Note: ADB = Asian Development Bank, GMS = Greater Mekong Subregion, JICA = Japan International Cooperation Agency, NR = national road, OPEC = Organization of the Petroleum Exporting Countries, PRC = People's Republic of China, ROK = Republic of Korea, RGC = Royal Government of Cambodia.

Source: Ministry of Planning of Cambodia. 2009. Public Investment Programme: 3-Years-Rolling 2010–2012.

1.13. Contribution from People and Community

In Cambodia, ordinary citizens can finance infrastructure projects such as community roads, pagodas, schools, orphanages, health centres and other community assets without wholly using the government's budget. For instance,

50 percent of some of Phnom Penh municipality's urban roads along residential areas were financed by its own people, while the other 50 percent came from the government's budget.

1.14. Others Sources

1.14.1. Domestic Banking Sector

Cambodia has a two-tier banking system consisting of the Central Bank (National Bank of Cambodia); and privately owned commercial banks, specialised banks, microfinance institutions, and a number of NGOs involved in rural credit activities.

The key players in Cambodia's banking sector are the National Bank of Cambodia, 31 commercial banks (consisting of 22 locally incorporated banks and nine foreign bank branches), seven specialised banks including one state bank, two representative offices of foreign commercial banks, 32 microfinance institutions, and 29 NGOs involved in rural credit activities. By December 2011, banks had 1.27 million depositors and lent US$4.07 billion to 294,533 borrowers. In addition, Micro Finance Institutions have US$644 million lent to 1.14 million borrowers, and deposit collections of US$116 million from 242,116 depositors (ABC, 2013).

The banking sector grew significantly in 2011. Total assets increased by 24.39 percent from the previous year, while credit grew by 33 percent, or US$1.08 billion. This credit growth was a result of the 20-percent deposit growth (or US$ 880 million) and 9.85-percent growth (or US$112 million) in the capital base. The level of intermediation increased from 75 percent in 2010 to 83 percent in 2011. Total assets-to-GDP reached 63 percent in 2011, up from 56 percent in 2010. Total credits-to-GDP and total deposits-to-GDP increased from 28 percent to 34 percent; and from 37 percent to 41 percent, respectively, when compared to the previous year (ABC, 2013).

1.14.2. Capital Market

Cambodia established the Security and Exchange Commission of Cambodia (SECC) to oversee its capital market. On 20 November 2006, the government

(represented by the Ministry of Economy and Finance) and the Korea Exchange (KRX) signed a memorandum of understanding (MOU) on "The Development of the Securities Market in Cambodia". On 21 January 2008, the same parties signed another MOU on "The establishment of a Cambodia Securities Exchange in the Kingdom of Cambodia". Later, a joint venture agreement was made on 23 March 2009.

On 23 February 2010, Cambodia Security and Exchange (CSX) was registered as a public enterprise with the government holding the majority share. A year after, it received approval from SECC to operate as market operator, clearing and settlement facility, and depository operator. On 11 July 2011, CSX was inaugurated by Deputy Prime Minister Keat Chhon, Minister of Economy and Finance. Phnom Penh Water Supply Authority became the first domestically listed company on the CSX on 18 April 2012.

At present, the stock exchange in Cambodia is not active due to various issues: Domestic companies hesitate to reveal their financial information; unfavourable rules and regulations exist; potential investors have limited understanding and appreciation of the capital market, etc.

1.14.3. Pension Fund

Cambodia's pension fund remains small due to members' low salary. The fund was prescribed by the Law on Social Security Schemes for Persons as defined in the Labour Law and is managed by the National Social Security Fund (NSSF). At present, this fund is not used for investment purposes but rather deposited in a bank. In the future, it can be used to finance PPP projects.

Issues and Challenges in Infrastructure Development

Infrastructure development in Cambodia faces many challenges:

1) *Lack of Resources.* The government's 2013 budget is only about US$3.1 billion. Because of both the low budget and lack of external financing, infrastructure development is slow in meeting the needs of the people.

2) *Credibility of the Projects.* Most infrastructure projects proceeded despite the poor-quality assessment and feasibility studies, and lack of transparency. In many cases, the project appraisals were done without environment impact assessments and the people's participation. Some of the people were displaced but were not properly compensated or offered resettlement options, thus bringing about numerous protests.

3) *Sustainability of the Projects.* In Cambodia, while project implementation proved to be a success, its sustainability remains a problem. Most infrastructure projects had poor risk management and were not maintained after project completion. Roads and highways eroded quickly due to the overweight transport vehicles and lack of regular maintenance work.

4) *Urban Bias and Regional Gaps.* Since infrastructure investment is heavily focused on urban areas, rural and remote areas are left behind. Such is an example of how a combination of limited resources and poor infrastructure planning impacts rural welfare. For instance, those in rural and remote areas pay double or even triple the price of electricity in the urban areas. Coastal areas, too, still lack roads and other related infrastructure, and hence were left behind in terms of development.

5) *PPP vs Public Goods.* Most Cambodians are still unclear on the benefits of private investment in projects that serve as public goods. They still hold on to the belief that the government should not let the private sector take over projects that serve the public's interest such as highways, airports, and other BOT projects as these would allegedly bring about higher user costs and negatively impact their livelihood.

Conclusions

Physical infrastructure is important in realising both sustainable economic growth and poverty reduction. Though there have been progress for the past 20 years, Cambodia's infrastructure is still in a poor state, which is seen as a major barrier to economic development. The need for better infrastructure and energy to meet the country's demand is very huge and requires substantial investment that may be beyond the government's financing capacity.

Private-Public Participation (PPP) can be one of the best solutions to developing infrastructure given that the country is in dire need of huge investments.

At present, financing the development of infrastructure and other projects through PPP has been initiated and implemented but is still in its early stage. There remains many preliminary work needed such as setting up the institutional and legal framework and ascertaining that the human resource development are done properly, before both the private sector and the public in general can maximise the benefits from PPPs.

Recommendations

1) The government agency or unit responsible for preparing and managing PPP projects should be established in one of the following institutions:

- Ministry of Planning
- Ministry of Economy and Finance
- Council for Development of Cambodia (CDC)
- Office of Council of Ministers (directly under the prime minister).

2) Public-Private Partnerships should be encouraged as these could benefit both the government and the private sector.

3) Areas of focus in infrastructure development through PPPs should include:

- Maintenance and upgrade of infrastructure
- Public consultation and awareness survey

- Resettlement Action Plan (RAP) and Initial Environmental Impact Assessment (IEIA)
- Land issues and de-mining
- Explore additional and innovative methods of financing infrastructure maintenance and development
- Enhance the capability and competency of officers and personnel in agencies that are responsible for overseeing the physical infrastructure projects as well as ascertain that the size of the manpower is adequate.
- Improve regional cooperation and integration
- Formulate and implement a long-term transport and logistic infrastructure development plan with growth poles across the country.

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CHAPTER 3

Indonesia Country Report

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Introduction

Indonesia's population of more than 230 million people is 38 percent of the total population in the ASEAN. With an area covering 1.99 million sq km of various landscape characteristics, Indonesia boasts of a naturally inherent diversity. It is these large and diverse population as well as differences in geographic and development stages across regions that pose as challenges to the provision of adequate public infrastructure, as described in Box 1.

Box 1: Diverse Conditions of Indonesia's Infrastructure

Based on the Global Competitiveness Index (GCI) 2013, Indonesia's infrastructure still lags behind, with its quality ranked 78th (out of 139 countries) in 2012-2013.

From 2008-2013, the qualities of the port infrastructure and electricity sector were perceived as inadequate, although that of the electricity sector slightly improved in 2013. Telecommunications led other sectors in infrastructure although internet access and quality persisted as issues (Pradono and Syabri, 2013).

The transportation of goods, especially on a large scale, is conducted through

sea networks. Port facilities affect competitiveness, particularly when port infrastructure deficiency hampers the trade and transport of goods and pushes output price higher in both domestic and international markets. Major large-scale port facilities are mostly operated by Pelindo, the state-owned enterprise (SOE) on port operations. The seaport in Tanjung Priok, however, is considered as over its capacity (World Bank, 2011a). The number of ports from 2004-2009 did not change, and only 110 ports are operated by Pelindo while 533 others are not.

Access to electricity that is provided by the central government is still an issue, especially in the eastern part of the country, where more than 20 percent of households have no electricity access.[1] In particular, around 50 percent of households in Papua and Nusa Tenggara regions are without electricity access. There is also the issue on cost of electricity provision, considering that electricity generation come from fuel mostly imported by the central government. In this case, there is an effort to diversify electricity generation sources to gas, coal, hydro, and geothermal (Bappenas, 2010).

Road infrastructure conditions vary greatly across regions (Ministry of Finance, 2012). Paved roads built by provinces and local governments in most of the Kalimantan region are on average less than 60 percent of the total road length[2], while those in the Java region are more than 90 percent of the total road length. The Java region has the longest municipality-level roads (World Bank, 2011b), implying that connectivity may not be much of a problem relative to other regions, especially Kalimantan and the eastern part of Indonesia.

There is also a high disparity in road access and road qualities within each province. Some local governments have 100-percent paved roads, while others have less than 10 percent of paved roads such as those in West Sumatera, East Kalimantan, and Gorontalo provinces (Ministry of Finance, 2012).

Meanwhile, households' access to safe drinking water across regions varies from 40 percent to 70 percent of their population. While water quality is relatively better in rural regions, the low access to safe drinking water is mostly in urban regions such as in Banten and DKI Jakarta province. Management of water utilities remains in the control of the local government, particularly since PDAM (the water utility company) is owned by local governments.

The government opts for a relatively prudent fiscal policy. Its budget in 2007-2013 ranges from 16 percent to 18 percent of GDP and grew around 12 percent per year in the last two years (Table 3.A.1 in Annex). Tax revenues comprise 60 percent to 78 percent of total revenues, while non-taxes revenues have declined from above 30 percent in 2011 and 2012 to 21.7 percent in 2013.

The type and composition of government spending are indicators of the government unit's flexibility in implementing its development plan. In the central government's budget, around 30 percent to 33 percent is allocated to regions, although majority of the budget is still channelled to technical ministries' coffers.

On the overall, the budget deficit ranges from 2 percent to 4 percent of total expenditures. To cover such deficit, the central government has issued bonds called *Surat Utang Negara* (SUN). However, there is also a lack-of-absorption issue, as shown in Table 3.A.1 in the Annex, in which the overall realised budget is in a surplus position.[1]

Indonesia's government is exerting efforts to attract private sector participants and find external financing on infrastructure projects. Moreover, it has also committed itself to the ASEAN connectivity objective, focusing on cooperating with the ASEAN on infrastructure projects that exploit economies of scale across member states. Such cooperation may warrant that every initiative takes into account each country's national plan and development approaches on infrastructure provision, such as in public-private partnerships (PPP). Based on this context, the following section discusses Indonesia's fiscal situation, existing sources of financing for infrastructure, position on ASEAN connectivity, and institutional framework for PPPs.

Fiscal Situation and Public Sources of Infrastructure Financing

In terms of infrastructure financing, a lumpy infrastructure spending implies

[1] The creation of government bonds to close the deficit was started in 2003 after the issuance of Law 24/2002. These government bonds are either denominated in a foreign currency or in Rupiah (IDR), and were effectively adopted in 2006.

that large resources are needed in a short period of time for an estimated benefit to be received in the future. Thus, the spending needs to take into account uncertainties during the preparation and execution of the projects as well as future costs on the maintenance and use of the infrastructure. Furthermore, the government would generally also need funding from private sectors and/or external (foreign) funds. In case infrastructure projects are financed through loans, it is the private sector that would assess the financial condition of that country's public sector.

Indonesia's macroeconomic condition has improved over time in terms of the levels of government debt, interest rate, and inflation (see Table 3.1 on fiscal sustainable indicators). With budget deficit only hovering between 0.5 percent and 1.2 percent of GDP, its debt level could be reduced substantially to around 24 percent of GDP in 2013 (Ministry of Finance, 2013). A fiscal rule that caps annual deficits at 3 percent of GDP and accumulated debt at 60 percent of GDP ensures that fiscal discipline is working at both the central and subnational (province and local) levels.

Table 3.1: Fiscal Sustainability: Summary of Indicators

Components	2007	2008	2009	2010	2011
External debt stocks (million US$)	147,854	157,906	179,394	195,172	213,541
External debt stocks to GNI (%)	35.7	32.1	34.5	28.4	26.0
Short-term to external debt stocks (%)	12.6	13.0	13.4	16.9	17.9
Multilateral to external debt stocks (%)	12.6	12.6	11.7	11.6	10.7
Interest payments (million US$)	4,996	4,461	4,301	4,944	5,749
Reserves to external debt stocks (%)	37.2	31.4	35.4	47.6	49.9
Current account balance (million US$)	10,493	125	10,628	5,144	2,070

Source: World Bank (2013).

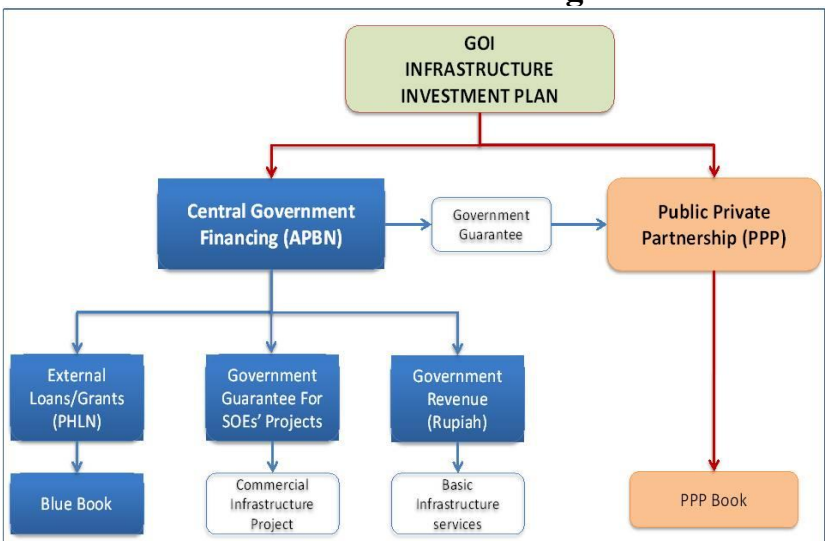
However, the Organization for Economic Development (OECD) projected that an increase in infrastructure spending by 20 percent would add a 0.2-percent increase in debt-to-GDP ratio from the baseline estimated in RPJMN 2010-2014 (Pisu, 2010). There is also an issue with the pattern of appropriations in which half of the amount is disbursed during the last three months of the year (Pisu, 2010), largely due to administrative and auction problems. Another problem is the decline in the proportion of the national savings to only around 16 percent to 21 percent of GDP in 2009-2012. Fluctuations in the current account balance may signal an underlying uncertainty on exchange rates, thus increasing the risk on the use of foreign funds.

Indonesia's infrastructure spending prior to the Asian crisis was around 8 percent of GDP, and since then has not recovered to that level again (World Bank, 2011a). The potential contribution of infrastructure spending should be pushed up to 7 percent of GDP so as to gain momentum and not just settle with the official estimate of 5 percent of GDP (Bappenas, 2011; Tan, 2011).

A 2011 study by the Asian Development Bank (ADB) notes that the limited capital financial instruments in Indonesia's domestic financial market may lessen the options on how the PPP projects' financing scheme would be managed. A more developed capital market is needed if it were to support infrastructure reforms in terms of financing. Long-term and reliable capital is also favourable compared to short-term capital as the latter could make macroeconomic conditions more vulnerable.

The public sector's contribution to infrastructure financing can be in the form of either a government budget allocated to technical ministries or state-owned enterprises (SOEs), or external grants, as shown in Figure 3.1. The central government may guarantee PPPs. Except for the external grants/loans, the same flow of funds can be applied to the subnational (i.e., provincial and local government) level. In such level of government as well as for cross-functional governmental arrangements, the government's guarantee is channelled to the local SOEs (Pradono *et al*., 2012).

Figure 3.1: Sources of Infrastructure Financing



Source: Alisjahbana (2012).

Broadly defined, the central government's spending on infrastructure is around 2 percent to 4 percent of GDP. Its fund allocated through budget tended to have taken off after 2010 based on data in Table 3.2, which shows that the allocated budget for the last two years was around IDR120 trillion to IDR160 trillion. The central government's infrastructure spending is mostly disbursed through technical ministries' programmes rather than through SOEs or other central government agencies. For example, from 2007-2012, around 75 percent to 85 percent of the total infrastructure spending of the central government was allocated through technical ministries, implying that financing scheme from the public sector is mostly conducted directly by the government (Table 3.2).

Table 3.2: Central Government Infrastructure Spending

By Agency	2007	2008	2009	2010	2011	2012[1)]
Technical Ministries (US$ billion) [2)]	5.10	6.80	7.81	7.54	10.49	14.26
Technical Ministries (as % of total infrastructure spending)	85.19	86.48	85.52	75.86	83.48	88.33
SOEs and other CG agencies (US$ billion) [2)]	0.89	1.06	1.32	2.40	2.08	1.88
SOEs and other CG agencies (as % of total infrastructure spending)	14.81	13.52	14.48	24.14	16.52	11.67
Government Infrastructure Spending (% of GDP) [3)]	2.6	3.2	3.5	3.6	4.3	2.6
Government Infrastructure Spending (% of GDP) [4)]	1.5	1,6	1.6	1.5	1.7	

Notes: 1) Data for 2012 are budget data.
2) Infrastructure spending as stated in Budget Directorate which includes _____ and not only basic infrastructure;
3) GDP is nominal data from World Bank database;
4) Estimate from Goh, *et al*. (2012) for basic infrastructure (energy and public works)
Source: MOF 2013**.**

Meanwhile, the central government spending is not disaggregated by sector. Rather, it is disaggregated based on technical ministries or on function, where the allotment for infrastructure specifically may not be directly stated. The size of the central government spending on infrastructure is still lower than administrative expenses. In some years, the infrastructure spending allocated by the Ministry of Public Works was slightly higher than the education spending or military spending (Figure 3.A.2 in Annex).

Because of decentralisation, a part of the government's budget for infrastructure

is disbursed through local governments' budget.[2] Note, however, that while the consolidated budget in Table 3.3 has risen (around US$9.14 billion in 2007 to around US$24.9 billion in 2012), 65 percent of the total government spending is still controlled by the central government. Infrastructure spending from the local government budget, on the other hand, has been around 20 percent to 30 percent only of the total government spend on infrastructure. Provincial governments' share of the infrastructure spending has been quite low, despite the increase from less than 5 percent to around 8 percent, to 10 percent in the last four years.

Although the central government's allotment is the dominant source for public sector infrastructure spending, the central government is unlikely to ignore local governments' role either on the preparation or on the operation of services. This is because the functions are quite differentiated across all levels of governments. Functionally, it is the local governments that provide the most basic services of infrastructure, such as roads, drinking water, hospitals, and schools.

Table 3.3: Central, Subnationals, and Local Governments Infrastructure Spending

By Agency	2007	2008	2009	2010	2011	2012[1)]	2013[1)]
Central Government (US$ billion) [4)]	5.98	7.87	9.13	9.94	12.56	16.15	18.84
Central Government (% to Total Central Spending) [3)]	65.41	62.83	68.71	67.92	64.77	64.79	62.00
Province (US$ billion) [2)]	0.45	0.56	1.14	1.57	1.84	2.55	3.21
Provincial Government (% to Total Province Spending)	4.90	4.51	8.57	10.75	9.47	10.22	10.56
Local Government (US$ billion) [2)]	2.71	4.09	3.02	3.12	5.00	6.23	8.34
Local Government (% to Total Local Government Spending)	29.68	32.66	22.72	21.33	25.76	24.99	27.44

Notes: Values in IDR is converted to US$ based on exchange rate of US$1 = IDR10,000.
1) Data in 2012 are budget data, and realised spending is for central government for 2011 data;
2) Infrastructure is defined as spending on public facilities that also includes housing;
3) Total spending has excluded transfer to provinces and local governments;
4) Central government spending for infrastructure allocated through Technical Ministries and SOEs or other central agencies.
Source: MOF 2013.

[2] Provincial and local governments' sources of revenues, however, mostly come from transfers from the central budget. Around one-third of the central government's budget is allocated as transfer fund for both provincial and local governments (Ministry of Finance, 2012).

The share of infrastructure spending on public utilities at each level of government ranges from 2 percent to 17 percent. On the overall, as shown in the Annex's Table 3.A.2, the share of housing and public utilities is more than 15 percent at both provincial and local government levels.

Table 3.4 shows variations across regions' provincial and local government infrastructure spending. Except for DKI Jakarta (where there are no figures available for its local government in Table 3.4), the provincial as well as local government infrastructure spending is quite low (although mostly developed infrastructure) in the densely populated Java region. At local government levels within each province, there is a high variation in the share of infrastructure spending. In 2011, around 214 out of 524 local governments had allocated less than a tenth from their total budget to infrastructure spending. Only 16 local governments—mostly resource-rich regions in East Kalimantan—allocated more than 30 percent of their budget for infrastructure spending.

Table 3.4: Province-Local Governments' Infrastructure Spending 2011 (as % to Total Expenditures): Pattern across Provinces

Region	Province Infrastructure Spending	Local Governments Infrastructure Spending			
		mean	min	max	standard deviation
Nanggroe Aceh Darussalam	21.74	9.99	4.25	17.49	3.73
Sumatera Utara	21.10	12.18	1.18	27.46	5.66
Sumatera Barat	18.17	10.97	5.21	21.78	4.63
Riau	3.35	20.06	12.12	35.12	7.12
Jambi	25.34	22.19	9.75	71.28	17.33
Sumatera Selatan	22.00	17.91	6.56	31.98	6.60
Bengkulu	10.45	9.98	1.34	17.34	5.36
Lampung	17.80	13.82	4.69	29.56	6.72
DKI Jakarta	17.06				
Jawa Barat	8.04	9.91	3.34	18.47	4.87
Jawa Tengah	8.99	7.47	0.00	14.74	3.09
DI Jogjakarta	13.60	5.85	3.44	7.59	1.88
JawaTimur	6.76	8.98	3.13	32.34	5.11
Kalimantan Barat	16.88	15.00	9.44	29.16	4.89
Kalimantan Tengah	16.25	18.65	5.23	27.92	6.92
Kalimantan Selatan	12.51	16.10	4.97	26.46	6.69
Kalimantan Timur	19.78	28.20	6.44	47.18	11.02
Sulawesi Utara	17.13	13.85	3.80	31.28	8.37
Sulawesi Tengah	14.50	11.19	4.99	21.56	4.78
Sulawesi Selatan	13.76	11.39	4.85	20.18	4.40
Sulawesi Tenggara	14.09	11.92	6.81	26.96	6.17

Region	Province Infrastructure Spending	Local Governments Infrastructure Spending			
		mean	min	max	standard deviation
Bali	2.96	6.97	3.18	14.93	4.16
Nusa Tenggara Barat	20.64	10.96	3.74	35.12	9.43
Nusa Tenggara Timur	6.64	10.47	5.05	21.49	5.02
Maluku	19.58	13.32	4.70	27.21	6.57
Papua	11.33	14.84	3.81	30.33	7.04
Maluku Utara	22.99	17.03	0.53	34.09	12.20
Banten	18.48	10.99	6.00	19.78	4.53
Bangka Belitung	23.92	12.22	1.03	17.11	5.37
Gorontalo	15.63	13.70	7.49	25.35	6.31
Kepulauan Riau	9.48	13.77	0.66	18.32	6.18
Papua Barat	7.69	16.35	5.00	30.73	7.41
Sulawesi Barat	18.90	9.71	7.04	13.87	2.73

Source: calculated from MOF (2013).

In terms of external grants/loans, the Bappenas Blue Book (2012) notes that most loans and grants for infrastructure projects, generally channelled via technical ministries (such as the Ministry of Public Works), go to urban areas. Meanwhile, Table 3.5 shows that around 80 percent of infrastructure financing from external funds comes in the form of loans. Depending on the implementing agencies, these external funds can be channelled to technical ministries, SOEs, or provincial and local governments. Table 3.A.3 and Table 3.A.4 in the Annex break down the allocation of grants and loans to provinces and local governments. Most infrastructure projects funded at the local level consist of roads infrastructure, while those at the provincial level are (clean) water infrastructure. Meanwhile, loans to SOEs for period 2010-2014 mostly go to PT PLN as the country's electricity SOE (Table 3.A.5 in Annex).

Table 3.5: Financing Infrastructure: Grants and Loans 2010 -2014

Indicator	Total 2010-2014	Infrastructure Project Assistant 2010-2014
By Type		
Loan (US$ million)	18,353.72	13,982,300
Grant (US$ million)	5,516.53	577,024
Counterpart Fund (US$ million)	3,053.76	2,295,019
by Implementing Agencies		
Ministries/Agencies	18,567.68	8,304,327
State-owned Enterprises (SOEs)	7,347.93	7,358,931
Local Governments	1,008.40	1,191,085

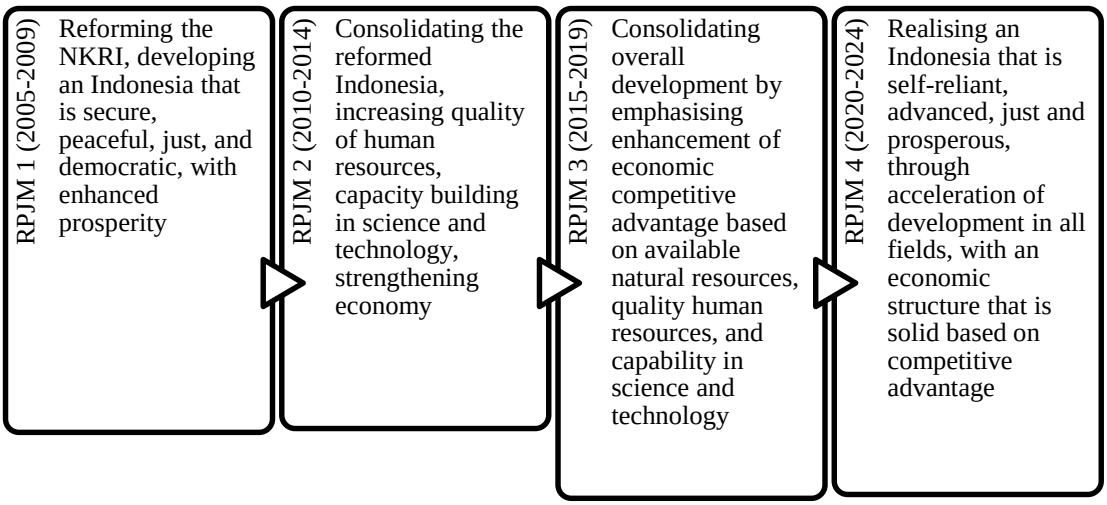
Source: Blue Book Bappenas (2012).

Development partners' commitment to infrastructure projects can be viewed in Table 3.A.6 in Annex. The World Bank, ADB, and International Finance Corporation (IFC) have shared funds given to the Indonesia Infrastructure Guarantee Fund (IIGF). The types of project funded by the World Bank and ADB have been varied, while AusAID and JICA usually have specific location or targeted regions for their funding.

National Development Plan for Infrastructure

Law 17/2007 translates the national development vision and mission for the period 2005-2025 of the National Long-term Development Plan (RPJPN) into main objectives for every five-year development period (2005-2009, 2010-2014, 2015-2019, and 2020-2025). For each five-year planning stage, the National Medium-term Development Plan (RPJMN) provides the roadmap for the elected president, which is then supposed to be followed even by the provincial and local governments. Figure 3.2 features the vision and mission of each RPJMN. Note that for the period 2015-2019, the focus is on handling economic disparity and improving competitiveness on natural and human resources, and technology.

Figure 3.2: Stages of Development: Long-Term Development Planning (RPJPN) 2005-2025



Source: Law 17/2007.

Infrastructure projects are national priorities in the context of building country competitiveness. In fact, based on RPJMN 2010-2014, infrastructure investment is estimated to be around US$14.3 billion, of which 35.75 percent would come from public sector (government) financing. Spending on infrastructure in 2010-2014, which aims to mostly focus on transportation and electricity, is still below the commitment target stated in RPJMN 2010-2014.

Thus, the government has issued Presidential Regulation 32/2011, or the Master Plan for the Acceleration and Expansion of Indonesia's Economic Development (MP3EI) 2011-2025 (Fiscal Policy Office, 2012). This long-term planning document aims for an economic growth rate of 7 percent to 9 percent per year. It has a potential to identify and scale up investments or spending on infrastructure (World Bank, 2011a). Table 3.6 shows indicative investments for infrastructure up to 2020 of around US$177.4 billion. High investments of around US$68.1 billion are needed by infrastructure for power and electricity, roads, and railway systems.

Table 3.6: Investments Indicated for Infrastructure 2011-2014

Infrastructure Sector	US$ billion
Road	33.9
Seaport	11.7
Power and Energy	66.9
Airport	3.2
Railway	32.6
Water Utility	1.8
Telematic	24.2
Other Infrastructure	3.1
Total	**177.4**

Source: MP3EI.

Part of the MP3EI calls for connectivity improvement within and inter-areas called economic corridors. There are four regional corridors that would be developed: (1) Sumatera; (2) Java; (3) Kalimantan; (4) Sulawesi; (5) Bali-Nusa Tenggara; and (6) Papua and Maluku Islands. Each (island) corridor focuses and prioritises a dominant sector. For example, the Java corridor is intended as base for economic production, especially for services; the Bali-Nusa Tenggara corridor is for tourism; and the corridor in the eastern part of the country is for agriculture and extractive industries.

Table 3.7 shows the investments by corridor. Aside from the Java corridor,

much of the investment would be channelled to develop the Kalimantan and Sumatera corridors. These two corridors are intended as bases for energy sources and extractive sectors. Of the total indicative investment of US$400 billion, only around 12 percent are expected to directly come from the government budget, while around 49 percent would be financed by the private sector, and around 18 percent and 21 percent would respectively come from SOEs' investments and hybrid investments between public and private sectors. Furthermore, infrastructure investment would involve around US$177.4 billion—or 44.3 percent of the total indicative investment indicated in the MP3EI document (Table 3.6).

Table 3.7: Indicative Infrastructure Investment Based on Corridor

Corridor	Billion US$
Sumatera	71
Java	128
Kalimantan	95
Sulawesi	31
Bali-Nusa Tenggara	13
Papua - Maluku Islands	62
Total	**400**

Note: value of IDR is converted to US$ using exchange rate of IDR10,000 per US$.
Source: MP3EI, Book 3.

National Infrastructure Planning and ASEAN Connectivity

The ASEAN connectivity framework is part of a roadmap for the ASEAN Economic Community (AEC) in 2015. In this context, the ASEAN expects the regional connectivity to improve its overall economy, taking into account the equity consequences of the transition within the ASEAN region. Indonesia as a country with diverse regions, expansive area and large population would have to figure out how to align its commitment to ASEAN connectivity with its own national plans and priorities.

Fortunately, because Indonesia already has plans to develop its (island) regions, it considers the ASEAN connectivity framework as a platform that can complement and support its own infrastructure targets. The concept of economic corridors augurs well with the development in regional borders with other ASEAN countries, as in the case of the Sumatera, Kalimantan, and

Sulawesi corridors. Indonesia's commitment is high considering that it is the second highest contributor to the ASEAN infrastructure fund (AIF).

According to the Master Plan on ASEAN Connectivity in 2010, Indonesia will take part in the Brunei Darussalam, Indonesia, Malaysia and Philippine - East ASEAN Growth Area (BIMP-EAGA) and the Indonesia, Malaysia, and Thailand - Growth Triangle (IMT-GT). The BIMP-EAGA aims to improve infrastructure connectivity, especially in the remote areas, among Brunei Darussalam, Malaysia, Indonesia, and the Philippines. It has two corridors of development: (1) The Western Borneo/Kalimantan Economic corridor (WBEC); and (2) The Greater Sulu Sulawesi corridor (GSSC).

The connectivity in the West Kalimantan corridor will prioritise electricity and land/road infrastructure. Its power transmission project plans to take advantage of the power generation economies-of-scale in neighbouring Malaysia. By filling the gap in its own power infrastructure requirements, this Indonesian project can spur economic and trade development between the two relatively similar cultures and geographic areas. The project is funded by ADB and commenced in 2011. It also involves the building of shorter roads networks from Pontianak to Entikong, which are supported further by crossing-border facilities between Sambas and Entikong. This sub-project started in 2012.

The Sulu Sulawesi corridor aims to improve infrastructure connectivity between Indonesia, the Philippines, and Malaysia. Projects within Indonesia itself include building toll roads between Manado and Bitung, although this has yet to commence. In general, the Sulu Sulawesi corridor’s objective is to enhance connections mostly in marine transportation and ASEAN broadband penetration. Because of the high environmental impact involved in marine transport, conservation of marine biodiversity is a priority. Therefore, the environmental consideration given to the marine project translates into more regional cooperation in environmental coral triangle protection.

Meanwhile, the IMT-GT aims to expand cooperation on strategic sectors between the three countries, thus allowing them to take advantage of their complementary economic factors that can improve the competitiveness of the sector in the area. In terms of funding, the IMT-GT Blueprint for 2012-2016 needs around US$4.58 billion for projects located in Indonesia, and about US$320 million and US$328 million for projects in Malaysia and Thailand, respectively (Sidgwick, 2011).

In Indonesia, the IMT-GT will focus on the island of Sumatera. According to the IMT-GT Blueprint for 2012-2016, projects in Indonesia will mostly require the building of toll roads across Sumatera and improving facilities in existing main ports, such as Roll-On Roll-Off (RORO) networks, customs, and better road access to the ports. Some projects, such as the Sumatera toll roads and improvement of facilities at the Dumai port, are classified as PPP and have been included in the PPP Book by Bappenas. However, such projects still have to contend with issues of unconfirmed funding. Because of such funding issue, there are those who believe that it would be best to shift the financing of these projects to the government. On the other hand, if this would be externally funded, then it would be have to be included in Bappenas' blue book.

The other IMT-GT project involves power generation and transmission connectivity between Indonesia and Malaysia. It aims to build a power transmission network that uses existing power generation facilities from Malaysia. This project is to be initiated by the state-owned electricity company, PLN, with funding from ADB.

Public Private Partnership: Institutions and its Adoption

In terms of the regulatory support on PPP, Pradono, *et al*. (2012) states that PPP development in Indonesia can be classified into the following stages:

1) Period prior to 1990, when the central government issued regulations that lay the foundation on private sector involvement on toll roads and IPPs (proposal);

2) Period 1990-1997, which further promoted the PPP scheme in the utilities sector although the 1998 economic crisis had hampered the continuation of the programme and handed much of the initiatives over to the central government through SOEs;

3) Period 1998-2004 is the consolidation period where improvements focused on regulatory support on infrastructure sectors and set up of institutions (i.e., KPPI was formed); and

4) Period from 2005 onwards, where the government tried to adopt a regulatory framework and to implement PPP projects based on international best practices. The government issued Government Regulations 67/2005 and 13/2010 on PPP. During this period, the role of institutions surrounding PPP regulations and sector laws was established and clarified.

Table 3.8 shows the regulatory framework of PPP. These regulatory reforms aim to create the path for private involvement in infrastructure projects on specific sectors, such as electricity and transportation. In Indonesia, such sectors are still dominated and monopolised by SOEs.

Table 3.8: PPP: Regulatory Framework

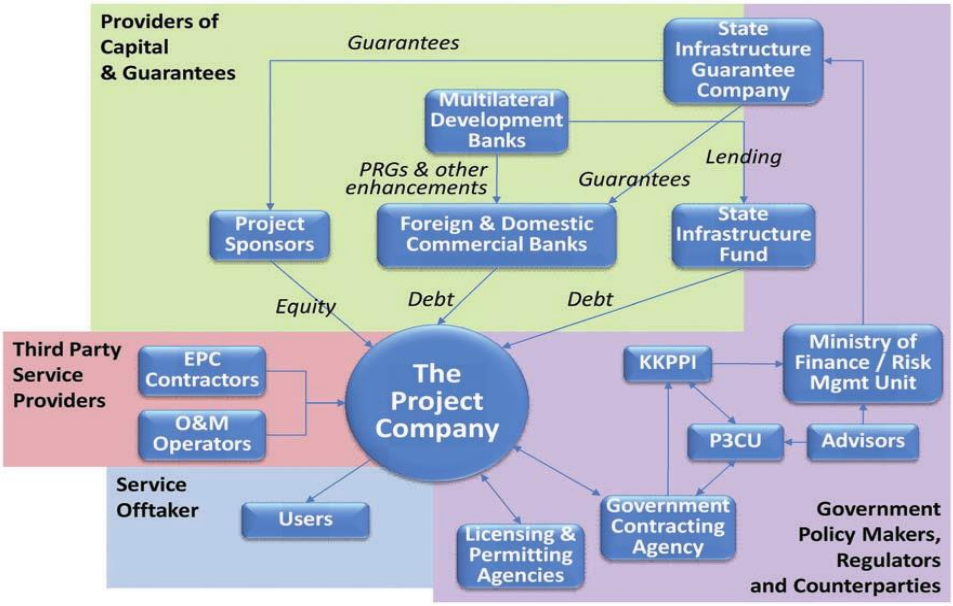
Year	Type of Regulation
2005	Government Regulation 67/2005
2006	MOF Decree 38/2006 on Risk Management
2007	Law 23/2007 on Railway Transport
2008	Law 17/2008 on Sea Transport and Port, Law on Energy, Law on Waste Management
2009	Law 1/2009 on Air Transport, Law 22/2009 on Land Transport, Law 30/2009 on Electricity
2010	Government Regulation 13/ 2010, Planning Ministry Decree no 4/2010, Government Regulation 78/2010 on PPP Financing Guarantee, MOF Decree 260/2010 on Financing Guarantee Guideline

Source: Fiscal Policy Office (2012).

Figure 3.3 classifies institutions involved in PPPs as either: (1) governments/regulators/counterparties; (2) providers of capital and guarantees; (3) project company; or (4) third-party service providers. The government unit that handles PPP project priorities is the National Development Planning Agency's (Bappenas) Public-Private Partnership Central Unit (P3CU). Bappenas has released a PPP plan document in 2010 that enumerates the types of PPP projects offered by the government for the period 2010-2014. According to the Bappenas document, the categories for PPP project selection and preparation are: potential projects, priority projects, and ready-to-offer projects. Here, the PPP units in Bappenas and/or Ministry of Finance assess the feasibility of such projects and evaluate the financing scheme. The project starts after the government contracting agency and the project company have reached an agreement. The government contracting agency can either be the central, provincial or local governments, depending

on the type of PPP infrastructure and its services. Meanwhile, the license or permits to operate or provision of services generally come from the technical ministry.

Figure 3.3: Institutions in PPP Framework



Source: Coordinating Ministry of Economic Affairs (2010).

On Project Development Facility (PDF), the government set up the IIGF to provide the guarantee fund and PT SMI to support feasibility studies on PPP projects in 2009. The provision of the government's guarantee funds is part of risks management in infrastructure projects to make the project more attractive for private sector participation. International development partners, and not just the government, also help find funds for the IIGF.

Meanwhile, PT SMI functions more as a facilitator between project owner and investor in project identification and preparation, which covers areas ranging from solicitation of government support, feasibility studies, financing schemes, socialisation and project marketing, as well as project financing execution.

The PPP schemes adopted in Indonesia, such as in the case of toll roads, are mostly modified Build-Operate-Transfer (BOT) arrangements, wherein the

government also contributes in the funding of the project. Generally under BOT schemes, private sectors fully fund the projects that have both economic and financial bankability (Pradono, *et al.*, 2012).

Table 3.9 lists the distributed PPP projects as of 2012 based on sectors, implementing agencies, and location of the projects. Most PPP projects are on transportation toll roads and water supply, which are frequently administered in coordination with local governments. As of 2012, there are 13 PPP projects on toll roads, five projects on water supply, and four projects each on power and on solid waste and sanitation.

Table 3.9: PPP Projects: Based on Sectors/Sub Sectors, Implementing Agencies, and Targeted Regions 2010-2014

No	Sector/Sub Sector	Quantity	Project Cost (US$ Million)
1	Air Transportation	4	1,354.00
2	Land Transportation	3	136.00
3	Marine Transportation	4	2,875.12
4	Railways	3	4,783.00
5	Toll Road	14	33,147.53
6	Water Supply	18	1,978.82
7	Solid Water and Sanitation	6	453.00
8	Power	6	6,478.50
	Total	58	
No	**Type of Projects**	**Quantity**	**Project Cost (US$ Million)**
1	Ready-to-Offer Projects		
	Central Government	2	664.00
	Local Government	1	100.00
2	Priority Projects		
	Central Government	13	32,159.53
	Local Government	10	2,788.17
3	Potential Projects		
	Central Government	10	6,597.12
	Local Government	22	8,897.15
	Total	58	51,205.97
No	**Province**	**Quantity**	**Project Cost (US$ million)**
1	Nangroe Aceh Darussalam	1	21.00
2	North Sumatera	3	2,042.00
3	West Sumatera	3	48.00
4	Riau	4	5,543.53
5	Jambi	2	1,602.20
6	South Sumatera	4	2,526.83
7	Lampung	1	318.20
8	Banten	4	26,591.00
9	DKI Jakarta	2	812.50
10	West Java	13	4,027.16
11	Central Java	3	118.22

No	Province	Quantity	Project Cost (US$ million)
12	DI Yogyakarta	2	1,370.00
13	East Java	2	436.67
14	Bali	3	833.00
15	NTB	1	7.00
16	West Kalimantan	2	160.40
17	Central Kalimantan	2	23.00
18	South Kalimantan	1	26.76
19	East Kalimantan	2	2,980.00
20	North Sulawesi	1	353.00
21	West Sulawesi	1	1,335.50
22	Central Sulawesi	1	30.00
	Total	58	51,205.97

Source: pkps.bappenas.go.id

In the context of decentralisation, many PPP initiatives are conducted by local governments following the framework from the central government and in coordination with the provincial government. Local governments, in this case, are expected to initiate small-scale PPP projects. For example, for the period 2010-2014, local governments are expected to initiate 50 PPP projects (Pradono, *et al.*, 2012).

Lessons Learned from Private Sector Participation

The adoption of the PPP scheme remains slow due to the following issues (Fiscal Policy Office, 2012; Tan, 2011; Pradono and Syabri, 2013): Involvement of domestic and support financial sector; delays and uncertainty on land acquisition that also spur land speculation; low response on government risk support; and weak resource capability of PPP institutions, which may lead to poor project preparation and inferior feasibility studies.

As stated in Pradono, *et al.* (2012), challenges facing PPP projects pertain to the risks and revenues arrangements. Risk allocation is a major issue, especially in cases where the government contracting agency is at the subnational level (i.e., provincial or local). Since governments at the subnational level are generally revenue constrained, some might view PPP as an additional source of revenues. If the potential risks are not documented properly, it will be easy for the government contracting agency to downplay

the risks of the project. Lessons must be learned from failed PPP projects such as the Ungaran Potable Water Project in Semarang, which already spent US$10.22 million before it was stopped.

Most risks are borne by private partners who also operate the project. Also, there are royalties that must be paid irrespective of the profit or loss condition of the project. Learning from the Ungaran Project scheme, there is a need to revisit the PPP design so as to balance the benefit-and-cost sharing among the stakeholders.[3]

Meanwhile, the case of PPP projects in the electricity (power) sector is an example on how modified risk management and sector laws—apart from the general PPP framework—are needed to support the execution of PPP projects. Large-scale PPP projects are vulnerable to changes in the macroeconomic environment, such as economic or financial downturns. These project require a sound and in-line regulatory framework.

Unlike other public utilities projects, those in power generation would be distributed solely through PLN and so, the risks associated with an overestimate demand is not an issue. Nonetheless, the government needs to gradually set the electricity pricing, so that the cost structure of PLN makes the cooperation on power generation between PLN and the private sector feasible. In this case, financial facilities on currency hedging schemes as well as on how it would be aligned with government public financial management are important given that large PPP projects depend on external (foreign) fund.

According to Pradono, *et al.* (2012), another example of a PPP project that went well is the Jakarta Outer Ring Road (JORR) Project. This toll road project was operated in 2010 and managed by PT Jasa Marga, PT JLB, and PT JLJ. Like any other toll road projects under the BOT scheme, the JORR project is relatively working adequately, although the overall risk is still borne by the private sector. One of those risks is the delay in the land acquisition process. To mitigate this, the project was socialised among stakeholders during the preparatory stage that, to some extent, had ensured

[3] There are at least 12 PPP projects that were reportedly idle because investors withdrew from the projects, and feasibility studies (FS) have yet to resume (Investor Daily, 2013).

their accountabilities. The project also has relatively high financial feasibility with any risk to be compensated by tariff adjustments. The procurement process is still overseen by PT Jasa Marga, the SOE-operator of toll roads. Through a reform of Law 22/2009, there is already a separate body that monitors the procurement and operation, including tariff adjustments, of toll roads.

Recommendations on PPP and ASEAN Connectivity

Establishing the role of institutions as a general approach has its advantage when issuing sector laws. Also, a simplified regulatory system improves project efficiency in terms of the price-cost recovery level of its investment. Once regulatory reforms and the needed PPP institutions are in place, there is now an opportunity to promote PPP for small- and medium-scale projects with the participation of subnational and/or local governments. The central government should encourage the subnational units, specially if the latter are already ready in terms of their capacity and their region's economies-of-scale to participate in infrastructure project.

One way to get subnational and local governments' involvement in the project is by aligning their public financial management with the PPP scheme. A relatively uniform regulatory framework applicable to subnational and local governments may ease the latter's adoption of the scheme.

A consistent execution of the central government framework in infrastructure project may not suffice when it is not complemented by a variety of financing schemes. Thus, attracting foreign direct investments from the private sector should be resorted to so as to complement the public sector's approach on infrastructure spending.

In Indonesia, the lack of infrastructure specifically in the transport and energy sectors has long been a concern as it hinders the country's competitiveness. In fact, addressing this concern not only helps Indonesia but the ASEAN region as well. An infrastructure project may have a distributive effect across the ASEAN borders, as it makes it possible for remote and poor regions to gain more economic access.

The establishment of the ASEAN Infrastructure Fund (AIF) is the first step towards creating another source of infrastructure financing. Indonesia, the second largest contributor of AIF (after Malaysia), can take advantage of this fund for its cross-border infrastructure projects.

Nonetheless, the AIF's US$485.2 million fund is still measly in comparison to the needed fund estimated at US$8 trillion (Das and James, 2013). The current AIF initiative, where ADB contributes and jointly manages the fund, needs to further involve other development partners so as to increase the fund size. More development partners may mean more private investments as well as opportunities to get more technical assistance on the management of these cross-border infrastructure projects.

In terms of the process and institutional issues, countries in the ASEAN have different regulatory frameworks and institutions. What is needed now is a common understanding among countries on how sharing and aligning regulatory frameworks can help and complement the ASEAN roadmap on cross-border infrastructure. For instance, sharing of databases on ASEAN nations' regulatory frameworks, at least on the transportation and energy sectors, can help align their schemes with the infrastructure projects under the Master Plan on ASEAN Connectivity. Furthermore, even subnational governments can learn a lesson or two from the differences in the stages of development as well as regulatory frameworks across nations. The ASEAN region may even consider setting up a sustainable learning centre on infrastructure development that aims to create awareness, identify, and learn from what is working and what is not from existing cross-borders infrastructure projects.

In sum, although there are challenges in coordinating cross-border infrastructure projects, the financial and economic viability of these projects is less of an issue, especially when there is an adequate joint fund—as in the case of the AIF—with additional support from bilateral organisations or private sectors. In its effort to improve the capacity of the public sector, the country should also factor in the capabilities at the subnational levels. In Indonesia's case, the subnational governments—not just the central government—should improve their learning process as well as their

accountability over the outcome of their cross-border infrastructure projects. When all stakeholders are on the same page with regard their knowledge and ownership, only then will the implementation of projects in the country become more effective. The success of Indonesia's existing projects can set the tone as well as create a good benchmark for future infrastructure ventures.

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Annex

Table 3.A.1: Summary of Central Government's Realised Budget (Audited): 2007-2013

	2007		2008		2009		2010		2011		2012		2013	
	Bil. US$	%	Bil. US$	%	Bil. US$	%	Bil. US$	%	Bil. US$	%	Bil. US$	%	Bil. US$	%
A. Revenues and Grants	**70.78**	**100.0**	**98.16**	**100.0**	**84.88**	**100.0**	**99.53**	**100.0**	**121.06**	**100.0**	**135.82**	**100.0**	**152.97**	**100.0**
I. Domestic Revenues	70.61	99.8	97.93	99.8	84.71	99.8	99.22	99.7	120.53	99.6	135.74	99.9	152.52	99.7
1. Taxes Revenues	49.10	69.4	65.87	67.1	61.99	73.0	72.33	72.7	87.39	72.2	101.62	74.8	119.30	78.0
a. Domestic Taxes Revenues	47.01	66.4	62.24	63.4	60.13	70.8	69.44	69.8	81.98	67.7	96.83	71.3	113.43	74.2
b. International Trade Taxes	2.09	3.0	3.63	3.7	1.87	2.2	2.89	2.9	5.41	4.5	4.79	3.5	5.87	3.8
2. Non-Taxes Revenues	21.51	30.4	32.06	32.7	22.72	26.8	26.89	27.0	33.15	27.4	34.11	25.1	33.22	21.7
II. Grants	0.17	0.2	0.23	0.2	0.17	0.2	0.30	0.3	0.53	0.4	0.08	0.1	0.45	0.3
B. Expenditures	**75.76**	**100.0**	**98.57**	**100.0**	**93.74**	**100.0**	**104.21**	**100.0**	**129.50**	**100.0**	**154.83**	**100.0**	**168.30**	**100.0**
I. Central Government Expenditures	50.46	66.6	69.34	70.3	62.88	67.1	69.74	66.9	88.37	68.2	106.95	69.1	115.44	68.6
II. Transfers to Regions	25.33	33.4	29.24	29.7	30.86	32.9	34.47	33.1	41.13	31.8	47.88	30.9	52.86	31.4
1. Balanced Funds	24.40	32.2	27.87	28.3	28.73	30.6	31.67	30.4	34.72	26.8	40.84	26.4	44.48	26.4
2. Special Autonomy and Adjustment Funds	0.93	1.2	1.37	1.4	2.13	2.3	2.80	2.7	6.41	4.9	7.04	4.5	8.38	5.0
III Suspend	-0.02	0.0	-0.01	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
C. Primary Balance	**3.00**	**4.0**	**8.43**	**8.6**	**0.52**	**0.6**	**4.15**	**4.0**	**0.89**	**0.7**	**-7.23**	**-4.7**	**-4.01**	**-2.4**
D. Surplus/Deficit (A-B)	**-4.98**	**6.6**	**-0.41**	**0.4**	**-8.86**	**9.5**	**-4.68**	**4.5**	**-8.44**	**6.5**	**-19.01**	**12.3**	**-15.33**	**9.1**
E. Financing	**4.25**	**5.6**	**8.41**	**8.5**	**11.26**	**12.0**	**9.16**	**8.8**	**13.09**	**10.1**	**19.01**	**12.3**	**15.33**	**9.1**
I. Domestic Financing	6.90	9.1	10.25	10.4	12.81	13.7	9.61	9.2	14.87	11.5	19.45	12.6	17.28	10.3
II. Foreign Financing	-2.66	3.5	-1.84	1.9	-1.55	1.7	-0.46	0.4	-1.78	1.4	-0.44	0.3	-1.95	1.2
Surplus/Deficit Financing	-0.74	1.0	8.00	8.1	2.40	2.6	4.47	4.3	4.65	3.6	0.00	0.0	0.00	0.0

Note: Data of 2013 is budget data (not realised budget), values converted to US$ billion using exchange rate of US$1 = IDR10,000
Source: Calculated from Budget Directorate Data (MOF 2013*)*

Table 3.A.2: General Composition of Government Expenditures in 2013 Budget: By Level of Government

Type of Spending	Central Government		Provinces		Local Governments	
	US$ billion	%	US$ billion	%	US$ billion	%
General Administration	73.38	64.4	10.86	50.9	12.98	24.6
Defence	7.77	6.8	0.00	0.0	0.00	0.0
Safety and Order	3.40	3.0	0.13	0.6	0.62	1.2
Economy	11.49	10.1	2.27	10.6	4.59	8.7
Environment	1.22	1.1	0.45	2.1	1.27	2.4
Housing and Public Facilities	2.72	2.4	3.21	15.1	8.94	16.9
Health	1.67	1.5	1.76	8.2	5.32	10.1
Tourism	0.25	0.2	0.22	1.0	0.31	0.6
Religion	0.40	0.4	0.00	0.0	0.00	0.0
Education	10.87	9.5	2.15	10.1	17.94	34.0
Social Protection	0.74	0.6	0.27	1.3	0.81	1.5
Total	113.91	100.0	21.32	100.0	52.8	100.0

Source: Calculated from Budget Directorate and DJPK data (MOF 2013).

Table 3.A.3: Financing Infrastructure of Local Governments: Grants and Loans 2011-2014

No	Province/ Local Government	Sector	Amount (US$ thousand	Loan (L) / Grant (G)	Counterpart Fund (US$ thousand)
1	Kab. Aceh Besar	Roads	6,277	G	
2	Kota Bekasi	Railways	3,500	G	1,024
3	Kota Makassar	ICT	12,510	L	3,132
		Water	20,000	L	3,000
4	Kep. Riau Province	Seaport	87,142	L	13,000
5	Kab. Agam	Energy	72,800 (L) 9,100 (G)	L, G	76,500
6	Kota Pekanbaru	Water	20,000	L	5,500
7	Kab.Bandung	Roads	150,000	L	15,000
8	Kota Kendari	Roads	60,000	L	6,000
9	Kota Padang	Roads	58,000	L	6,800
10	Kota Cirebon	Railways	136,000	L	20,400
11	Kota Banda Aceh	Sanitation	18,000	G	

Source: Blue Book Bappenas (2012).

Table 3.A.4: Financing Infrastructure of Provincial Governments: Grants and Loans 2011-2014

No	Province/ Local Government	Sector	Amount (Thousand US$)	Loan (L) / Grant (G)	Counterpart Fund (Thousand US$)
1	DKI Jakarta	Railways	500,000	L	75,000
		Seaport	120,000	L	
		Flood Mgt	150,000 (L) 6,000 (G)	L, G	6,600
2	Gorontalo	Air Transport	17,900	L	1,790
3	South Sulawesi	Roads	50,000	L	5,000
4	Banten	Water	40,000	L	6,000
5	NTT	Water	125,900	L	12,900
6	West Java	Water	40,000	L	25,000
7	DI Yogyakarta	Water	53,160	L	7,900
		Railways	226,000	L	40,000

Table 3.A.5: Grants and Loans: SOEs 2010-2014 (US$ thousand)

State-Owned Companies (SOEs)	Loan	Grants	Counterpart Fund
1. PT Penjaminan Infrastruktur Indonesia	30,000		
2. PT Pertamina	1,446,605		478,426
3. PT PLN	4,616,800	38,500	568,600
4. PT Semen Baturaja	100,000		80,000

Table 3.A.6: Development Partner's Financing for Infrastructure Development

Development Partners	Available Funds	Financing Scheme	Priority Sectors / Projects	Priority Regions
World Bank	2009: US$0.25b 2010: US$0.2b 2013: US$0.1m		- Roads & highways - Water resource - Power - Indonesia Infrastructure Guarantee Fund	Urban areas SOE
ADB	2009: US$0.1m 2011: US$0.05m 2012: US$0.18m	Loan	- Roads & connectivity - Water supply - Financing facility	Central gov't Local level
AIF (ASEAN Infrastructure Fund)	2013-2015: US$1b			
AUSAid	2010-11: AU$3.8m	Subnational incentive	- Water and sanitation - Roads	Local level

	2011-12: AU$3.8m	grant financing		
JICA	2009: JPY48.2b		- MRT - Geothermal power plan - Roads - Railways	Central gov't

[1] Ministry of Finance (2012).
[2] There is also the perception that the bad road infrastructure in Kalimantan is due to the heavy mining trucks that pass by these roads. Thus, the quality of the roads can be maintained for a short period only (www.sindonews.com).

CHAPTER 4

Lao PDR Country Report

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Introduction

Laos aims to achieve its ambitious goal of graduating from its Least Developed Country status by 2020. Relatedly, in its seventh National Socio-Economic Development Plan (NSEDP 2011-2015), the country also targets a growth of above 8 percent. To attain these, one of the main driving forces on the demand side is the surge in infrastructure investment.

Also, the country has been gradually integrating into the world economy through its accession to regional as well as multilateral trade organisations. Lao PDR benefited from opportunities gained from its openness, although there remain several challenges. As a member of the Association of Southeast Asian Nations (ASEAN), for example, it has to deal with the development gap existing between newer members such as itself and the organisation's older members. To reduce such gap between Cambodia, Lao PDR, Myanmar, and Viet Nam (better-known as CLMV countries) and ASEAN's older members,

[&] The authors would like to thank Mr. Oulay Phadoungdeth (Department of Planning and Cooperation, Ministry of Public Works and Transport); Mr. Barend Frielink (Lao PDR Resident Mission); Mr. Sombath Southivong (World Bank); and Mr. Phongsavanh Phomkong (International Finance Corporation) for their kind cooperation and comments. The conclusion and recommendations in this paper are those of the authors alone and do not necessarily reflect the views of the Economic Research Institute for ASEAN and East Asia.

the Initiative for ASEAN Integration framework has infrastructure development as one of its four priority areas. The other focus areas are human resource development; information and communication technology; and regional economic integration (ASEAN, 2013).

Development in roads, electricity system, and other public investments will strengthen the supply side of the Lao economy, reduce the predominant reliance on the mining sector, and create more pro-poor growth. However, Lao PDR has a relatively inadequate infrastructure with virtually underdeveloped public water and medical systems. Many rural areas in Lao PDR still have no access to electricity despite the governmental plans to increase national electricity grid. One major obstacle to infrastructure development is the shortage of government budget.

Macroeconomic Condition

Since introducing the New Economic Mechanism (NEM) in 1986, Lao PDR has been transitioning from a centrally planned economy to a more market-oriented one. As a result, except during the Asian financial crisis of the 1990s, Lao PDR has been achieving high economic growth. Economic growth averaged about 8.02 percent over 2006–2011, faster than that in 2001–2005 (6.24%), 1996–2000 (6.17%), and 1990–1995 (6.28%) (Table 4.1).[1] Such rapid growth has enhanced the industrialisation process. Lao PDR' GDP in 2010 was US$8.3 billion, of which 30.3 percent is from the agricultural sector; 27.7 percent is from industry; and 42 percent is from services. The industrial sector has grown by more than 10 percent since 2002, causing the weight of agriculture in the economy to decline. Population growth gradually decreased from 2.71 percent in 1990–1995 to 1.58 percent in 2001–2005 and to 1.48 percent in 2006–2011.

[1] The engine of growth during this period was foreign direct investment (FDI) inflows in the mining and hydroelectricity sectors. For a more detailed discussion of the impact of FDI in the mining and hydroelectricity sectors on the Lao economy, see Kyophilavong and Toyoda (2008).

Table 4.1: Macroeconomic Development in Lao PDR, 1990–2011

Macroeconomic Indicator	2006-2011	2001-2005	1996-2000	1990-1995
Population (million)	6.07	5.58	5.12	4.49
Population growth (%)	1.48	1.58	2.07	2.71
GDP (current US$ million)	5,739	2,130	1,617	1,276
GDP growth (%)	8.02	6.24	6.17	6.28
GDP per capita (constant 2000 US$)	509	371	302	243
GDP per capita growth (%)	6.43	4.58	4.00	3.44
Money supply (M2) (US$ million)	1,783	409	271	148
Money supply growth (%)	29.87	20.18	66.04	30.92
Inflation, CPI (%)	5.42	10.31	57.00	15.27
Trade balance (US$ million)*	-320	-228	-276	-174
Trade balance/GDP (%)*	-5.41	-10.43	-17.03	-13.02
Foreign reserve (US$ million)	875	242	138	54
External debt (US$ million)	5,140	2,691	2,418	1,960
External debt stocks (% of GDP)	92.81	129.86	152.99	160.25

Macroeconomic Indicator	2006-2011	2001-2005	1996-2000	1990-1995
Budget deficit (including grants, US$ million)*	-136	-87	-79	-107
Budget deficit/GDP (%)*	-2.53	-4.13	-4.87	-7.95
Budget deficit (excluding grants, US$ million)*	-357	-125	-142	-152
Budget deficit/GDP (%)*	-6.05	-6.04	-8.88	-11.52
Exchange rate (kip per US$)	8,885	10.164	4,094	727

Sources: World Bank online database 'World Development Indicators', available at http://databank.worldbank.org/data/home.aspx. * Asian Development Bank (ADB) online database 'Key Indicators for Asia and the Pacific 2012', available at www.adb.org/statistics.

With limited physical capital stock and low population growth, labour forces have been increasingly absorbed into the industrial sector, thereby stimulating the productivity growth in the Lao economy, as reflected in the rising real GDP per capita from US$243 in 1990–1995 to US$509 in 2006–2011.

Such fast economic growth cannot be achieved without macroeconomic stability. The average inflation rate remained at single digit in 2006–2011, marking a huge improvement over the average inflation of 57 percent during 1996–2000. The exchange rate was similarly stable in 2006–2011. This low inflation rate coupled with stable exchange rate can increase the confidence in the Lao kip (the Lao currency) instead of the US dollar or Thai baht for economic transactions in Lao PDR. Reducing the holdings of foreign currencies is essential if one is to implement an effective monetary policy and to maintain a stable macroeconomy conducive for growth.

Although Lao PDR has been maintaining high economic growth, low inflation and stable exchange rate, serious macroeconomic challenges persist. First, Lao PDR has been dealing with chronic twin deficits in government and trade balances. In 2006–2011, the budget and trade deficit accounted for about 2.53 percent and 5.41 percent of GDP, respectively. The budget deficit is mainly

financed by official development assistance (ODA), while the trade deficit is compensated by foreign direct investment (FDI) and remittances.

With an already weak fiscal situation in Lao PDR, any continued increases in budget deficits could accelerate inflation and lower the value of the kip, potentially leading to the same economic instability experienced during the Asian financial crisis.

Second, there is a huge gap between savings and investment. The savings rate is low because average income is low—GDP per capita was about US$580 in 2007 (World Bank, 2008)—and financial sectors are underdeveloped. The banking sectors are dominated by state commercial banks, which are not fully performing important banking functions.[2]

Third, Lao PDR also faces a high external debt burden. Accumulated external debt accounted for more than 90 percent of GDP in 2006–2011. If Lao PDR becomes too dependent upon foreign finance, any potential difficulties in meeting its debt obligations can cause an external debt crisis and lead to macroeconomic instability. Rapid expansion of the resource sectors in Lao PDR must therefore be accounted for in the macroeconomic management of Lao PDR.

Fourth, as the Lao economy highly depends only on resources sectors[3], it will limit the growth of the non-resources sector and will have a negative long-term impact called the "Dutch disease".

Current Infrastructure Condition

In many ASEAN countries, infrastructure investment has played a major role in fiscal stimulus packages used to mitigate the negative effects of the global crisis. These infrastructure investments have been utilised particularly in key

[2] More details about financial issues, and monetary and exchange rate policies in Laos are discussed in Kyophilavong (2010).

[3] According to the World Bank (2010), the resources sector contributed about 2.5 percentage points to the growth rate over 2005 to 2010. The resources sector accounted for about 70 percent of all exports in 2010, a share that is expected to increase due to the ongoing development in the hydroelectricity and mining sectors.

sectors such as energy, transportation, information technology and communications (ITC), and water and sanitation. Among other ASEAN countries, the investment demands concentrate in transport and energy infrastructure. Since Lao PDR is a land-locked country, most of the demand is for road infrastructure development projects. However, so is the demand for improving its energy infrastructure high.

The estimation using the "top-down" and "bottom-up" approach from Bhattacharyay (2010) shows that in ASEAN and the Greater Mekong Subregion (GMS)—each of which has Lao PDR as a member—most investment needs concentrate in the power sector. Nearly 60 percent of total national investment needs are in the power sector, followed by the transport sector, the telecommunications sector, and the water and sanitation sector (Table 4.2). Of the total infrastructure investment needs in Asia, energy (electricity) infrastructure comprises 45 percent of the amount, followed by the transport sector, which needs 28 percent primarily for investment in roads development.

Table 4.2: Infrastructure Investment Needs as a % of Estimated GDP, 2010-2020

Country	Investment as % of Estimated GDP				
	Transport	**Electricity**	**ITC**	**Water & Sanitation**	**Total**
Cambodia	4.43	0.95	2.97	0.36	8.71
PRC	1.39	3.42	0.44	0.13	5.39
Indonesia	3.88	0.98	0.97	0.35	6.18
Lao PDR	10.62	0.00	2.40	0.60	13.61
Malaysia	1.94	4.42	0.27	0.04	6.68
Mongolia	12.04	0.00	1.21	0.21	13.45
Myanmar	2.70	0.00	1.46	1.88	6.04
Philippines	2.30	1.87	1.22	0.65	6.04
Thailand	0.58	3.69	0.45	0.19	4.91
Viet Nam	2.07	3.12	2.38	0.54	8.12
Total	**1.61**	**3.22**	**0.53**	**0.17**	**5.54**

Source: Bhattacharyay, B. (2010), and Centennial (2009).

Bhattacharyay (2010) also finds that in the GMS subregion specifically, the need for more investment is in the transport, followed by the energy sector. In the case of Lao PDR, the investment need in transport infrastructure (particularly the road sector) is about 10.62 percent of the estimated GDP during the period 2010-2020 as shown in Table 4.2.

1.1. Road

1.1.1. Current Road Situation

The road network in Lao PDR has expanded significantly in the last two decades—from 14,000 km in 1990 to 44,005 km in 2012 (Table 4.3), averaging around 1,824 km per year (or 4.6%). Tarred roads increased to 6,896 km (about 7%) annually. Despite this significant expansion, most remote parts of the country still have no dry or wet season access. In other words, although 56 percent of the national roads are paved with a bitumen surface, around 30 percent of rural villages remain inaccessible and depend on earth roads, which are often impassable during the wet season.

Table 4.3: Length of the Roads for the Whole Country (Unit: Km)

Items	2006	2007	2008	2009	2010	2011	2012	Share
Total Length of the roads	35,260	36,831	37,194	39,569	41,492	41,949	44,005	100
Growth (%)		4.5	1.0	6.4	4.9	1.1	4.9	
Concrete roads	N/A	N/A	N/A	34	83	97	141	0.32
Asphalt concrete roads	N/A	N/A	N/A	496	614	684	725	1.65
Tarred roads	4,548	4,811	4,739	4,882	5,324	6,603	6,896	15.67
Gravelled roads	11,981	12,572	13,128	13,864	14,556	14,142	15,324	34.82
Earthen roads	18,731	19,448	19,327	20,293	20,915	20,423	20,919	47.54

Source: Ministry of Communication, Transport, and Construction.

Roads in Lao PDR remain wanting as a result of, to a large extent, the insufficient investment in rehabilitation and maintenance of the roads network, implying its hard constraint on the national poverty reduction objective (Australian Government, 2012).

At present, the Lao government has been receiving financing support from various sources such as US$27.8 million from the International Development Association (IDA), US$1 million from the co-financing initiative of the Japanese government agency called Policy and Human Resources Development (PHRD), US$8 million from the Lao government's Road Maintenance Fund (RMF), and US$6.38 million from the regular annual government budget. These funds will be used for the Lao Road Sector Project (LRSP) activity during the project life period 2010-2014. The project consists of three main components: Road Network Improvement and Preservation, Institutional Strengthening, and Disaster Recovery and Contingency (Australian Government, 2012).

The types of transportation in the country have been increasing, as can be inferred from Table 4.4, partly thanks to projects that promote travel. Among the country's completed transportation infrastructure projects are: (1) the construction of a friendship bridge that links Savannakhet province of Lao PDR to Moukdahan province of Thailand; and (2) Road No.1 in Vientiane Capital. Likewise, the 3-km Dongposy-Thanalang railway has been constructed. Important roads, including R3 Road (Boten-Huaysay), Road No. 9 (Savan-Seno), and Road No. 12 (Thakek-Ngommalath), have been operational while some projects are in various stages of construction. These ongoing projects include Road No. 2W (Ngeun district-Pakbang district) (91% complete), Road No. 15B (Saravan-Lao-Viet Nam border) (49% complete), Mekong river bridge (Thakek-NakonPhanom) (40% complete), Road No. 2E (Kwa-Thaichang) (31% complete), and Road No. 14A (Pakse bridge-Lao-Cambodia border). In addition, Savannakhet Airport has been reopened, and about 81 percent of the upgrade of the Pakse Airport has been finished (MPI, 2010).

An example of a successful road project is one supported by the Australian government. Here, the number of people with road access reached 7,206 (1,148 households and 3,595 women), along with an increase in rural employment opportunities (Australian Government, 2012).

Table 4.4: Freight Transport by Categories of Transport (unit: thousand tons)

Years	Total	Growth (%)	By land	By water	By sea	By air
1990	667.9		551	106	10.3	0.5
1995	1,470.2	120.1	950	476	43	1.2
2000	2,308.5	57.0	1,635	672		1.5
2001	2,283.4	-1.1	1,543	739		1.4
2002	2,750.9	20.5	1,946	770	33	1.9
2003	3,068.5	11.5	2,174	893		1.5
2004	4,043.4	31.8	3,102	940		1.5
2005	3,213.7	-20.5	2,592	621		0.7
2006	3,307.6	2.9	2,709	598		0.6
2007	4,089.4	23.6	3,322	767		0.4
2008	4542.6	11.1	3,659	883		0.6
2009	4,668.4	2.8	3.707	961		0.4
2010	5,820.2	24.7	4.730	1,088		1.6

1.1.2. Road Investment Financing

As infrastructure projects are public goods in nature and have significant externalities for society, funding through national government budgets is usually the mainstay in infrastructure financing. Traditionally, national government budgets have been the predominant source of funding for infrastructure investments and services in the country.

In past years, Lao PDR has made its best efforts to finance road maintenance projects starting with 106 billion Kip in 2005-2006, and increasing to 270 billion Kip by 2009–2010. Nonetheless, it was still far from meeting the actual demand in terms of number of roads, and many roads continue to be left in disrepair (MPWT, 2013). Furthermore, several evidences show that the delays in some projects were mainly due to inadequate funding. Therefore, the government's first priority will be to preserve the existing condition of operational roads, particularly national roads, by providing sufficient funds (ADB, 2010b).

To attain the above objective, external supports is vital for such less developed country as Lao PDR. In addition to the central budget allocations, most of the infrastructure development projects in Lao PDR are supported by donors, development banks, and other financing institutions that channel funds towards developing the transportation system.

Data collected from MPWT (2013) indicate that the potential funding sources for upcoming infrastructure development are either domestic funding sources (recurrent state budget, National Road Maintenance Fund, equitisation of asset, and Nam Theun 2 Hydro Plant revenues) or funding from development partners.

The first domestic funding comes from the annual investment budget. This has two sources: those from the annual state budget of the Ministry of Public Works and Transport (MPWT) and those from the annual provincial budget received from the government. The state budget allocation is estimated at 1,600 billion Kip for FY 2014-2015.

The second domestic fund source is the National Road Maintenance Fund (RMF). Created under the Road Maintenance Project (RMP) in Lao PDR, the fund is supported by the levy on fuel, which is its main revenue, and by heavy vehicle surcharges, overweight fines, bridge tolls, and international transit fees (ADB, 2010b).

The RMF allocates 90 percent of its revenues to national roads. The fund heavily depends on aid from development agencies, which currently forms 65 percent of the overall funding. Table 4.5 shows the funding sources in the case of the Lao Road Maintenance Project 2.

Table 4.5: Summary Lao PDR Road Maintenance Project 2

Aid Activity Name	Lao PDR Road Maintenance Project 2		
Aid Works initiative number	INH714		
Commencement date	4 February 2008	Completion date	31 December 2010
Total Australian $	2,800,000	(2.5%)	
Total other US$	1,000,000	(ADB loan: 1.5%)	
	24,392,100	(World Bank: 37%)	
	4,800,000	(Japanese PHRD: 7%)	
	11,060,000	(SIDA: 17%)	
	23,500,776	(Road Maintenance Fund-Lao Government: 35%)	
Delivery organisation	The World Bank		
Implementing partner	The Ministry of Public Works and Transport		
Country/Region	Lao PDR/South East Asia		
Primary Sector	Transport		

Source: Melhuish (2010).

Although RMF has covered only 40 percent of the needs, it has still been deemed a "well-performing fund". It has had a significantly favourable impact on revenue generation, earning a total income of 16 billion Kip (about US$1.9 million) in its first year. In 2008-2009, its revenue even rose significantly to 207 billion Kip (about US$24.4 million). The income is estimated to reach 605 billion Kip (about US$71.2 billion) by 2015 (Melhuish, 2010).

The third source of domestic funding is from the equitisation of assets. Currently, the government promotes both domestic and foreign investment in road network development in such sectors as industry, agriculture, mining, and energy. Although the revenue from this source is yet to be estimated, there are initially 22 projects in the technical preparation phase and/or fund mobilisation phase, out of which three projects pertain to bridges across the Mekong River measuring 2,060 km long.

The fourth source of domestic funding is the electricity sale revenues generated from the Nam Theun 2 Hydropower plant. About 30 percent of this hydropower plant's total revenue has been annually allocated to local road maintenance. For FY 2014-2015, the contribution from this source is estimated to increase to 200 billion Kip.

Development partners, too, are significant contributors to the Lao transport sector. Since 1984, the sector has received about 10,800 billion Kip for road and bridge development from international development partners. For FY 2011-2015, the funding from this source will be about 25,118 billion Kip.

At present, Lao PDR has cultivated good relations with its neighbouring countries, fellow ASEAN members, and Western powers, which had contributed to a satisfactory inflow of both Official Development Assistance (ODA) and foreign direct investment (FDI) as well as helped regional security. It is worthy to note that the bulk of financing for infrastructure projects in Lao PDR not only comes from the public sector, but from ODA predominantly. Lao PDR has in fact been highly dependent on ODA, especially in financing new physical infrastructure projects and upgrading existing ones (BTI, 2012). In 2007-2008, for example, 73 percent of the US$78.59 million of total public investment for roads was from external agencies in various forms such as grants, soft loans, and long-term loans (ADB, 2010b).

Most ODA for infrastructure projects comes from Japan and multilateral lenders such as the Asian Development Bank (ADB), Nordic Development Fund, Swedish International Development Cooperation Agency (Sida), and the World Bank. In particular, the last three of the above-mentioned supporters are the main providers of assistance in the Road Maintenance Programme (ADB, 2010b).

Japan is the largest ODA donor to Lao PDR, contributing about US$109 million in 2010, while international financial institutions ADB and World Bank provided US$65 million and US$48 million, respectively. Since their assistance specifically to Lao PDR' transport sector is likely to be sustainable based on an assessment of government's financing of recurrent costs, institutional arrangements, cost recovery of projects, and the past experience on road maintenance in the country, ADB and World Bank are two of the lead development partners for the road subsector and, in fact, effectively co-chairs the infrastructure working group in Lao PDR (ADB, 2010b). Based on the Asian Development Fund (ADF) policy, for example, ADB provides 100-percent grants, mainly for infrastructure development projects, to Lao PDR to help reduce the burden on the latter's national budget (World Bank, 2008).

As an individual source of assistance, Australia is estimated to be the fourth largest donor with its total ODA estimated at around US$43 million in 2011-2012. Further bilateral aid also comes from other friendly countries such as China, Korea, Thailand, and Viet Nam, albeit on a smaller scale (Australian Government, 2012). For example, after the railway from Nongkai province, Thailand, to the Lao-Thai Friendship Bridge was completed, both the Lao and Thai governments had already agreed to construct a 3.5-km railway from the middle of the bridge to Thanaleng, Lao PDR. This will be funded by the Thai government for US$4.9 million, of which 30 percent is in the form of grant, and 70 percent is soft loan (Oraboune, 2008).

Another source of road financing is the fund from the Pre-Investment Project. In 2001, the Pre-Investment Study laid out a pragmatic and sector-focused strategy and action plan to transform the East-West Economic Corridor (EWEC) of the Greater Mekong Subregion (GMS). The study proposed a total of 79 policy, project, programme and institutional initiatives, divided according to high-, medium- and low-priority levels. The high-priority initiatives consisted of these six core strategic thrusts (Lord, 2009):

- Spatial planning and physical infrastructure improvements to create the basis for realising East-West Economic Corridor concept;
- Policy and procedural simplification to reduce barriers to the efficient cross-border movement of goods and services;
- Support programmes to enhance the capabilities of enterprises of the EWEC to engage in regional trade and co-investment;
- Capital and financing for projects to support the EWEC concept;
- Skills development to upgrade the capabilities of EWEC residents and businesses, and to enhance long-term competitiveness of the EWEC;
- Institutional development to upgrade the capabilities of local-level bodies to sustain cooperation.

The fourth priority listed above, which pertains to capital and financing, presents an opportunity for Lao PDR, as a member of the GMS, to be a financing recipient since it has important linkages with other member countries. Take for example the Vientiane-Bangkok Route Intersection Node, which links Bangkok with the northeast of Thailand and Vientiane of Lao PDR, and the multi-lane Highway 209 of the EWEC. The Thai government had endorsed it as the principal export centre in the Indo-China region. In addition, in 2008, the prime ministers of two GMS members, Lao and Cambodia, met to discuss their need for a transit transport and the mechanisms that would provide Lao PDR greater access to Sihanoukville Port and facilitate trade. Implementation of this transit and trade facilitation arrangements would significantly impact the commerce along National Road No. 13 (Lord, 2009). That is, these interchange nodes link east-west trade with north-south trade, and the transportation network can produce significant increases in traffic flows.

1.2. Hydropower/electricity

1.2.1. Current Hydropower Development

Lao PDR, historically one of the poorest countries in Asia and the Pacific region, has made impressive progress in developing its economy and reducing poverty, thanks to the development of its mining and hydropower sectors. The average 7-percent annual GDP growth helped halve the share of the population that is below the national poverty line to less than 25 percent (IMF, 2011).

Lao PDR possesses abundant energy resources with less environmental impact. Its hydropower facilities cover 97 percent of all its electricity sources (ADB, 2006). The hydropower plant in the Greater Mekong River Basin has been recognised as the most abundant and cost-effective natural source for electricity generation. As reported by the Department of Energy Promotion and Development, the country is endowed with a hydroelectric potential of about 26,500 MW, excluding the mainstream Mekong. Of the potential, about 18,000 MW is technically exploitable, with 12,500 MW found in the major Mekong sub-basins, while the rest are in minor Mekong or non-Mekong basins.

The exploitation of hydropower for electricity export is at the heart of the Lao government's strategy to earn foreign currencies so as to support the country's development. Being at the hub of the Greater Mekong Subregion (GMS) and its substantial hydropower potential, Lao PDR has a strategic role in realising the economic, environmental and sectoral benefits of electricity trading in the subregion.

Despite the tremendous hydropower potential, only 10 percent has been developed in over 30 years. Very few households, particularly in rural areas, have access to electricity, implying an obstacle to the socio-economic development. To ensure an adequate supply of electricity for domestic demand as well as for export to other countries in the region, the Lao government has aimed to provide electricity to at least 70 percent of the entire households by 2010, and 90 percent by 2020. Its efforts would require increasing the number of power plants in the country by promoting more investment in this sector. Table 4.6 shows the gradual increase in power plants in the country today while Table 4.7 indicates the forecasts for domestic demand for electricity.

Table 4.6: Existing Power Plants in Lao PDR

No	Project Name	Inst. Cap (MW)	Annual Energy (GWh)	Compl. Years	Regions
1	Nam Mang-3	40	147	2005	C1
2	Xeset-2	76	309	2006	S
3	Xepon	75	301	2008	C2/S
4	Nam Ngum-2	75	275	2008	C1
5	Nam Ngum-5	100	430	2009	C1/N
6	Xeset-3	20	85	2010	S
7	Hoauay Lamphan	60	354	2010	S
8	Nam Ngum 4B	56	254	2011	N

No	Project Name	Inst. Cap (MW)	Annual Energy (GWh)	Compl. Years	Regions
9	Nam Beng	45	175	2012	N
10	Tha Kho	36	215	2013	C1
11	Nam Bak 2B	116	563	2012	S
12	Vieng Phoukha	50	263	2014	N
13	Nam Pot	23	97	2015	C1
14	Nam Sim	7	24	2015	N
15	Nam Kong 3	25	142	2016	C1
16	Nam Long	11	53	2016	C1
17	Nam Ngum 4A	55	250	2017	C1
18	Nam Sane2	62	279	2018	C1
19	Xexou	59	277	2019	S
	Total Plan	991	4,493		

Note: N: North, S: South, C1: Central-1, C2: Central-2
Source: Electricite du Lao PDR, 2003.

Table 4.7: Forecast on Domestic Electricity Demand for the Whole Country (MW)

	Year	Demand	Supply	Balance
Need to Import	2011	786	579	-207
	2012	1,021	786	-235
	2013	1,165	859	-306
	2014	1,419	1,161	-258
Excess Electricity to Be Exported	2015	2,083	2,349	266
	2016	3,180	6,851	3,670
	2017	3,290	7,342	4,052
	2018	3,401	8,298	4,897
	2019	3,403	8,473	5,070
	2020	3,488	8,737	5,249

Source: Electricité du Lao PDR (EDL, 2012).

The development of hydropower-based generation facilities is open to foreign investment from many international firms. Currently, hydropower development is the most attractive investment project whose concession agreement is mostly under a Build-Operate-Transfer (BOT) scheme. This type of concession gives investors a long-term return on their investment (IPD, 2010).

Also, under the seventh National Socio-Economic Development Plan for 2011-2015, the Lao government intends to build 10 more hydropower plants that have a capacity to generate about 5,015 MW of electricity (Liying, 2012). Independent power plants (IPPS) and several medium-sized IPP projects had been nominated to participate so as to meet the increasing demand in the

country as well as from neighbouring countries, especially Thailand and Viet Nam.

Lao PDR has been exporting surplus power from its Nam Ngum Hydropower Plant to Thailand ever since the said hydropower plant was commission in 1972. Later, a memorandum of understanding (MOU) on 4 June 1993 between the two countries that required 1,500 MW of electric power in Lao PDR to be developed by year 2000 and exported to Thailand—along with Lao PDR' new foreign investment policies—paved the way for private sector participation in the development of Lao PDR' electricity for export.

The Theun-Hinboun hydropower project was the first to be implemented under the MOU and the first major investment under the new foreign investment policies of Lao PDR. Except for a small supply that goes to nearby local areas, much of the project's electricity was produced for export to Thailand (ADBI, 2010). In addition, Thailand is likely to gradually increase its import of electricity from Lao PDR given that much of the expansion projects in Lao PDR mostly come from hydropower-based plants, which have less environmental issues. Such environmental benefit applies not just to Lao PDR, but also helps Thailand in reducing its carbon dioxide (CO_2) emission.

Meanwhile, the Nam Theun 2 hydroelectric project (NT2), which began its commercial operation in March 2010, is the largest of its kind in Lao PDR so far. It is capable of producing 1,070 MW of electricity and generating US$235 million worth of gross revenues from yearly sales to Thailand. Note that Thailand, which accounts for about 90 percent of Lao PDR’ total electricity exports, is Lao PDR' biggest importer. However, since NT2 is unable to accommodate the significant demand, other power plants have been considered to serve both the domestic consumption as well as the demand from Thailand.

There are five other projects where the Lao government had agreed to export electricity to Thailand and will benefit from in terms of export revenues (Phomsoupha, 2009). In addition, the new 1,280 MW Xayaburi Dam in the northern part of the country, a run-of-river hydropower project on the Mekong River, is under construction. This first mainstream project will be one of the largest hydropower plants in Lao PDR with more than 90 percent of its generated electricity to be exported to Thailand (ESI, 2012).

1.2.2. Electricity Accession

Since most of the total electricity generated in Lao PDR is to be exported to Thailand, only around 10 percent will serve domestic demand. In addition to the independent power plants (IPPs), several medium-sized IPP projects have been nominated to supply electricity for domestic use (Watcharejyothin and Shrestha, 2009).

According to Watcharejyothin and Shrestha (2009), the urbanisation rate in the country is estimated to gradually rise from 22 percent in 2005 to 36 percent by 2035. Likewise, the forecasted electrification rate in rural area will increase from 33 percent in 2005 to 95 percent by 2035. Domestic demand for electricity in Lao PDR has been growing very fast in line with the government's poverty reduction plan on rural electrification (although still very low when compared with the consumption levels in other ASEAN countries). The demand largely comes from mining, manufacturing, and business (EDL, 2010).

The average growth of electricity consumption is expected to be high due to two main reasons:

- The increase in the number of Electricité du Lao PDR (EDL)[4] customers after the transmission and distribution network system was expanded and electrification ratio grew; and
- Rise in per-capita energy consumption because of changing lifestyles.

According to EDL (2012), the utility company that owns and operates transmission and distributions system in Lao PDR, the forecasted average growth rate in energy demand for the whole country from 2006 to 2020 is about 13 percent while peak load is at 11 percent. Currently, more than 70 percent of the Lao people nationwide have access to electricity following the EDL's execution of the 8th Party Congress' resolution to improve electrification. The key drivers for the improvement of electrification include:

- Sustained national commitment with substantial financial support from the Lao government;

[4] EDL is the state corporation of Laos that owns and operates the country's electricity generation, electricity transmission, and electricity distribution assets in Laos.

- Utility-driven, grid-based electrification complemented by an off-grid programme;
- Substantial financing platform;
- Programme planning and prioritisation to maximise social benefits, targeting the poor and ascertaining sensitivity to social differences such as gender; and
- Reduction in investment and operating costs (Milattanapheng, 2012).

Lao PDR also imports some amount of electricity from its neighbouring countries-—namely, Thailand, Viet Nam, and China—to accommodate its increasing consumption of electricity, especially in the rural areas. For Lao PDR, importing is a cheaper alternative than having to extend its national grid to each corner of the country (i.e., where the 22 kV transmission lines cost between US$10,000 and US$15,000 per kilometre, depending on the accessibility of the road). However, as shown in Table 4.7, Lao PDR will have adequate electricity to meet domestic demand by 2015, and still have surplus electricity available for export.

Because of higher consumption, the government is working to increase the electrification ratio from the current 70 percent to 90 percent by 2020 (MEM, 2011). With support from small hydropower facilities (i.e., those with capacity of up to 15 MW), increasing the electrification ratio of the whole country will be achieved through:

- **On-grid household electrification** - involves main transmission/distribution grid extensions to meet the 90 percent target, after deduction of off-grid installations.
- **Off-grid household electrification** - an embryonic but successful programme of electrification of off-grid households employing state, donor and private resources. The programme targets electrification of 150,000 households by 2020 and, if successful, will be substantially scaled-up.

1.2.3. Hydropower Investment Financing

The operational efficiency and financial viability of utility company EDL have improved remarkably over the past years as a result of the implementation of the power sector's financial sustainability action plan (World Bank, 2011).

However, many hydropower projects in Lao PDR still rely on foreign financial support (Table 4.8) due to insufficient domestic financing. The number of hydropower plants entirely financed by domestic investors is relatively limited. Although Xeset2 was entirely financed by EDL, it only has a 76-MW generation capacity (Table 4.9). In addition, the expansion of electricity networks and substations in rural areas (with 37,000 rural households in central and southern parts of Lao PDR expected to benefit from reasonably priced electricity for the first time by 2013) was made possible through a US$15 million loan extended by the International Finance Corporation (IFC, 2012).

Table 4.8: Power Projects Under Construction

Projects	Capacity (MW)	Financing Source		Operation Year
Xe Kaman 3	250	EDL of Lao PDR	15%	2012
		Viet-Lao PIDJS of Viet Nam	85%	
Nam Ngum 5	120	Sinohydro Corporation of China	95%	2011
		EDL of Lao PDR	5%	
THPP-Expansion	280	Nordic Hydropower of Sweden/Norway	20%	2012
		MDX/GMS of Thailand	20%	
		EDL of Lao PDR	60%	
Hong Sa	1,800	Ban Pu of Thailand	45%	2014
		Ratchaburi of Thailand	35%	
		LHSE of Lao PDR	20%	
HouayLamphanGnai	88	EDL of Lao PDR	100%	2014
Nam Khan 2	127	EDL of Lao PDR	100%	2014
Xekaman 1	468	Viet Nam	100%	
Namsan	14	EDL of Lao PDR	100%	
Nam Ngiep 2	180	EDL of Lao PDR	100%	

Source: EDL (2012).

Table 4.9: Power Projects Completed in Year 2009-2010

Projects	Capacity (MW)	Financing Source		Operation Year
Nam Theun 2	1,088	EDFI of France	35%	2009
		EGCO of Thailand	25%	
		ITD of Thailand	15%	
		LHSE of Lao PDR	25%	
Nam Ngum 2	615	C. Kanchang of Thailand	28.5%	2011
		EdL of Lao PDR	25%	
		Ratchaburi of Thailand	25%	
		Bangkok Express Way of Thailand	12.5%	
		Shlapak Group of USA	4%	

Projects	Capacity (MW)	Financing Source		Operation Year
		PT Construction of Lao PDR	4%	
		TEAM of Thailand	1%	
Xeset-2	76	EDL of Lao PDR	100%	
Nam Lik 1-2	100	CWE Corporation of China	90%	2010
		EDL of Lao PDR	10%	

Source: EDL (2012).

Policy Framework on Infrastructure Investment

Article 49 of the 2009 amended Investment Promotion Law No. 02/NA lists agriculture, industry, handicraft and services as Lao PDR' promoted sectors. Detailed lists of remote activities will be categorised by the government into three different levels based on priorities. Furthermore, Article 50 of the law specifies three zones for investment promotion based on the socio-economic infrastructure and geographical conditions of the country as follows:

- **Zone 1**: mainly mountainous remote areas, where there is insufficient socio-economic infrastructure to facilitate investment.
- **Zone 2**: geographic isolation in this zone is not as severe as in zone 1. Socio-economic infrastructure is still able to facilitate investments to some extent. The zone is classified as a medium level of investment promotion.
- **Zone 3**: has good infrastructure available to support investments. This zone is classified as a low level of investment promotion.

Moreover, the duration of the profit tax exemption given as an investment incentive shall be implemented based on zones and investment promotion levels, as shown in Table 4.10.

Table 4.10: Profit Tax Exemption

	Level of Investment Promotion		
Investment Promoting Zone	Level 1	Level 2	Level 3
Zone 1	10 years	6 years	4 years
Zone 2	6 years	4 years	2 years
Zone 3	4 years	2 years	1year

Source: National Assembly (2009).

To improve its investment climate, the Lao government has been progressively reforming its trade facilitation since 2005 with support from a number of international agencies. As a result, there are now more than 20 active investment projects supported by both multilateral and bilateral donors, including ADB, Australia, the European Community, France, Japan, New Zealand, Singapore, the Netherlands, Sweden, United Nations Development Programme, and World Bank. The reforms include stimulating public investment to strengthen the supply side of the economy; reducing reliance on the mining sector; and creating more balanced growth (World Bank, 2011).

The framework for public investment, and sector and cross-sectoral planning is based on the five-year National Socio-Economic Development Plans (NSEDPs) whose central themes are economic growth, poverty reduction, and sustainable environmental management (IFAD, 2011). As stated in the seventh NSEDP, the target private investment is 64 percent (FDI: 54%, domestic credit 10%) of total investment (US$7.4 billion); the rest will be from donors and development partners (26%), and government budget (10%).

To achieve the goals stipulated in the NSEDP, the government itself has been actively allocating a large amount of its budget into public investment. Among others, 35 percent of total investment of US$15 billion (about 32% of the GDP) will be allocated to the infrastructure sector during the seventh NSEDP from 2011 to 2015 (MPI, 2010). Meanwhile, 35 percent and 30 percent will be allocated to the social sector and economic sector, respectively. The government will also exert effort to increase its total revenue to at least 18 percent to 20 percent of GDP. To regulate finances and mitigate the impact of external factors, the government aims to closely implement a new Budget Law and other financial regulations.

Today, the infrastructure sector has been further promoted by a number of infrastructure-related mega projects in the country[5]. In fact, there are 21 groups of selected mega projects specified in the seventh NSEDP.

As mentioned earlier, Japan is the largest source of bilateral assistance for Lao PDR, followed by France, Sweden, and Germany. Meanwhile, ADB is its largest source of multilateral funding. In addition, ODA has contributed about 85 percent of public investment programmes in 2008 (IFAD, 2011).

Infrastructure projects in specific sectors such as transportation are also considered the heart of the country's economic development. Over the past 15 years, a high percentage of government's public investment has been concentrated on rebuilding the road system with impressive results. The entire road network in the country amounts to about 32,600 km, consisting of 7,160 km of national roads, 8,950 km of provincial roads, 6,620 km of district roads, and an estimated 9,800 km of community and access roads. Recent investment has been devoted to the upgrade of the arterial road network, notably NR13.

Regional connectivity is also a core of Lao PDR' trade with neighbouring countries. Its so-called "land-linked" strategy involves turning from a land-locked to a land-linked country through the corridors at the fringes of Lao PDR, thereby allowing it to benefit from regional and subregional infrastructure development projects of the Greater Mekong Subregion (GMS), the Association of Southeast Asian Nations (ASEAN), Triangle Development Area, and a number of cooperation programmes (Oraboune, 2008). Moreover, the government of Lao PDR is working to make the country a centre for logistics for the GMS, confident that the ongoing road networks projects can prepare the nation for international linkages, particularly in the subregional north-south and east-west economic corridors.

Among the international linkages commenced between Lao PDR and neighbouring countries is the Northern Economic Corridor (NR3) that connects Thailand via Lao PDR to China. In 1997, it used to take three days for goods to move across one 270-km section of dirt track along the corridors of Lao PDR. Today, thanks to a US$90 million project equally funded by ADB, China, and Thailand, the same trip takes only four hours, even with a large increase in

[5] According to the 7th NSEDP, a mega project is a project or group of projects with a direct cost of US$50 million.

commercial traffic (ADB, 2009b). Another key international linkage is the east-west links that connects Western Lao PDR and Thailand to the border with Viet Nam (NR6 and NR7) (MONRE, 2012).

Electricity is also a vital infrastructure to promote sustainable development. From a net electricity importer, Lao PDR has become a net electricity exporter and is even on the way to becoming a regional electricity supplier due to its abundant hydropower potential. As a source of revenue from exports to neighbouring Thailand and Viet Nam, the development of large hydropower facilities in Lao PDR is getting attention from foreign investors (Bounthongvongsaly, *et al*., 2010).

Thus, the energy sector can facilitate the National Growth and Poverty Eradication Strategy's (NGPES) aim for Lao PDR to transition out of the Least Developed Country category by 2020. To achieve the national poverty eradication goal via energy development, the salient objectives of the energy sector for 2020 are as follows (ADB, 2010a):

- Expanding access to low-cost, reliable, and sustainable electricity;
- Earning foreign exchange by tapping the country's rich hydropower potential; and
- Becoming the battery of the GMS.

Given its ambitious plan to become a battery of GMS and to integrate the hydropower system within the GMS, the Lao government invested in high-voltage (230 kV and 500 kV) transmission systems (ADB, 2010a). Through the GMS power grids, Lao PDR will benefit from power interconnection with neighbouring countries in terms of higher electricity exports, improved relationship between Lao PDR and other GMS member countries, and enhanced investment climate. About 12,500 MW (or 60,000 GWh) of electricity generated using clean and renewable hydropower from Lao PDR will further help reduce 30-60 million tons of carbon dioxide emission yearly, bringing an annual savings of about five million tons of fossil fuels in the subregion (Thoummavongsa and Bounsou, 2013).

The hydropower sector is thus both a national and regional priority. With its rivers contributing about 35 percent of the Mekong flows and its strategic location between the booming economies of China, Viet Nam, and Thailand,

Lao PDR is uniquely situated to provide hydropower to both domestic and regional markets (ICEM, 2010). A number of hydropower dams have thus been built on the Lower Mekong River located in Lao PDR.

Recently, the four governments of the Lower Mekong River (Cambodia, Lao PDR, Thailand and Viet Nam) revived plans from the 1950s to build 11 hydropower plants in the region, of which nine would be located in Lao PDR (ESI, 2012). Altogether, the national vision is to build 103 hydropower plants, of which 10 plants on the Mekong River's tributaries have already been in operation, eight under construction, and 82 under licensing or in planning stages nationwide, accounting for more than 20,000 MW (ICEM, 2010) of electricity.

Plans now include finding grants or concessionary loans, investments from private sectors, and individual independent power producers (IPPs) that may be needed at the initial stages of the interconnections (Thoummavongsa and Bounsou, 2013).

Issues and Challenges in Infrastructure Development

There are high demands for infrastructure in Lao PDR but the supply side (financing) is limited and beset by issues and challenges. First, government lacked funding for infrastructure development, leading it to resort to external sources for loans and grants. Second, based on its large budget deficits and external debts, it seems that government has over-financed infrastructure such that it led to macroeconomic instability. In addition, the monetary authority used reserves to finance road projects in 2007-2010. Third, as the State-Own Commercial Bank (SOCB) financed most pre-investment projects for road construction, ineffective infrastructure financing mechanisms can lead to more non-performing loans and higher costs for projects. Fourth, inappropriate infrastructure financing can lessen the creditor's credibility in the eyes of international bank and international donors. As a consequence, Lao PDR may have difficulty getting loans from international agencies for future projects.

There are issues on road financing in particular. First, the budget from the government for road construction is wanting. Second, because government has

limited budget, it resorts to a financing mechanism called “pre-investment”, wherein it allows domestic private investors to build the road first and then pays them back for the debt at a later time. Meanwhile, the domestic investors with limited funding mainly resort to the SOCB for loans guaranteed by the government. This funding mechanism may increase the bank's non-performing loans and therefore carries risks on the nation's macroeconomic stability.

Meanwhile, in hydropower electricity generation projects, most investments are in the form of FDIs simply because Lao PDR' local financial market is not yet sophisticated enough to offer other forms of domestic financing. Thus, there too are issues on FDI-funded projects. First, despite having an investment law, Lao PDR has poor implementation and supporting regulations. For one, agreements between FDI stakeholders and the government are negotiated. Because the Lao government has limited knowledge and capacity on contract negotiations, it may have difficulty in eliciting the optimal, or at least mutually advantageous, benefits out of the deals. Second, the massive FDI flows in hydropower electricity generation projects will appreciate the real exchange rate, lowering export competitiveness in other sectors such as agriculture and industry in a phenomenon called the Dutch Disease. Third, hydropower electricity generation projects bring with it environmental, natural resource and social issues, particularly because most of the Lao people who live in rural areas generate income from fishery and non-timber forest products.

Financing Infrastructure Option

1.3. Road

1.3.1. Public-Private Partnership

In Lao PDR, the bulk of financing for new and upgraded road projects mostly comes from the public sector and Official Development Assistances (ODAs). However, since infrastructure development is a long-term process that requires a strong coordination mechanism, the private sector can contribute substantially to the infrastructure projects in Lao PDR through a public-private

partnership (PPP)[6]. As pointed out by the Minister of Public Work and Transportation, 7,000 billion Kip (almost US$900 million) is needed for road development until 2015. Such amount is beyond the country's budget. To cover the gap, new ways such as the PPP may support investments in infrastructure development (Queiroz, 2012).

According to ADB (2009a), Lao PDR has actively supported PPPs. There are now five projects considered as PPPs, of which four are in the power sector and one is in the road sector. A World Bank assignment was carried out in Lao PDR to assess the initial feasibility of potential PPP projects for roads as well as to set the groundwork for a pipeline of potential PPP projects in the road sector. This mission also identified and worked to adopt best practices in the use of PPP in Lao PDR such as:

- Training on the financial assessment of PPP projects;
- Applying the newly acquired training skills in the actual preliminary financial assessment of two pilot PPP projects;
- Training in the use of Road Network Evaluation Tool (RONET), an excellent tool that helps identify a pipeline of potential PPP projects on an existing road network;
- Conducting PPP survey of key stakeholders; and
- Organising and participating in PPP workshops and technical discussions, including those on measures to improve the use of performance-based contracting (Queiroz, 2012).

In the brief PPP survey carried out in 2012, Queiroz (2012) found that Build-Operate-Transfer (BOT), Rehabilitate-Operate-Transfer (ROT), and performance-based contracts are forms of PPP with better potential in road

[6] In Laos, a public–private partnership (PPP) is a government service or private business venture that is funded and operated through a partnership of government and one or more private sector companies. The scheme involves a contract between a public sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project. In projects that are aimed at creating public goods in the infrastructure sector, the government may provide a capital subsidy in the form of a one-time grant, so as to make it more attractive to private investors. In some other cases, the government may support the project by providing revenue subsidies, including tax breaks or by removing guaranteed annual revenues for a fixed time period.

projects in Lao PDR. The survey also indicated that the stakeholders interviewed were optimistic about the PPP pilot projects in the road sector, which implied that they find the PPP projects feasible in Lao PDR.

Furthermore, representatives from such agencies as the Ministry of Finance, Ministry of Energy and Mines, Ministry of Planning and Investments, Ministry of Natural Resources and Environment, Prime Minister Office, and Ministry of Public Work and Transportation were likewise positive about the prospects of PPPs. One of the operational PPPs in the road sector pertains to the ThaNgon Bridge project. The study also found two potential PPP projects in the road sector: the Road 13 North (100 km) and Road 13 South (66 km).

1.3.2. ASEAN Infrastructure Funding

Another notable source to finance the road sector in Lao PDR is the so-called ASEAN Infrastructure Fund (AIF). With ADB as its shareholder, co-financier, and administrator, the AIF was established in 2011 to mobilise financial resources within ASEAN in support of regional physical infrastructure development, particularly in priority areas that include the transport, communication, energy, and water sectors. The AIF will have an equity of US$485.2 million, of which a total of US$335.2 million (69.08%) will come from ASEAN countries and US$150 million (30.92%) will be from ADB. With some help from its co-financiers, the AIF plans to leverage more than US$13 billion in infrastructure financing by 2020 (Rhee, 2013).

Also, its US$500 million is part of the overall regional budget for infrastructure assistance to less developed ASEAN members (Chheang and Wong, 2012), and Lao PDR is qualified as a recipient. This support will benefit the country's road development, although Lao PDR has to exert some effort to secure the funding given that the overall budget is not big enough to address all infrastructure needs of all member countries.

1.4. Hydropower

1.4.1. Public-Private Partnership (PPP)

As the demand for energy across the country substantially exceeds the governments' abilities to pay for it, private investment is expected to fill the

gap. Private sector participation in energy development in Lao PDR varies substantially, but could include everything from short-term basic management, contract and design, and build contracts, to far longer-term, concession-based design, build, finance, and operate contracts.

As noted earlier, the ability of the Lao government to invest in hydropower projects is limited. Thus, PPPs tap the private sector's administrative, operational and financing expertise to address such obstacle. The PPPs also bring in technical assistance and efficiency in project implementation (ADB, 2009a).

There are various PPP modalities available, including joint ventures, concessions, management contracts, as well as Build-Own-Operate (BOO), Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), and Build-Own-Lease-Transfer (BOLT) schemes. These modalities are increasingly viewed as credible financing mechanisms for infrastructure assets, especially in energy and transportation.

Among the ASEAN countries, Thailand, Indonesia and the Philippines have seen mixed successes in the development and execution of projects under PPP arrangements. Also, based on its experiences with the private sector in the development of power facilities, Viet Nam has recently developed pilot legislations that allow PPPs between private and public sector entities (Das and James, 2013). Lao PDR can use the lessons learned from these countries' experiences when considering PPPs for its own hydropower development.

According to Queiroz, (2012), a PPP survey in Lao PDR revealed that there are 11 ongoing and 60 preparatory-stage hydropower projects in Lao PDR that can consider PPP arrangements. Two major hydropower plants regarded as PPPs are the Theun Hinboun Power Plant and Nam-Theun 2 Hydroelectric Project, both of which have significant financing support from ADB.

1.4.2. ASEAN Infrastructure Funding

The ASEAN cooperation in the energy sector has been guided by a series of Plans of Action—e.g., the ASEAN Plan of Action for Energy Cooperation (APAEC) 1999-2004, APAEC 2004-2009, and APAEC 2010-2015—which aims to pave the way for an enhanced regional energy security framework while promoting efficient utilisation and sharing of resources (ASEAN, 2010).

With US$11 billion worth of completed or ongoing infrastructure projects supported by the ADB, the GMS countries (consisting of five ASEAN members Cambodia, Lao PDR, Myanmar, Thailand, and Viet Nam) plus Yunnan province of China implemented improvements in high-priority infrastructure projects—primarily in power, transport, and telecommunications sectors. While they had made big strides in interconnecting power systems, these nations' regional power infrastructure is still a long way off from effecting the advanced (or multi-country) power trading process envisioned under the GMS Inter-Governmental Agreement on Regional Power Trading because of insufficient financing (ASEAN, 2010). This is where AIF plays a crucial role in fulfilling the vision. It is another financing option for hydropower development projects, particularly in Lao PDR.

1.5. Other Financing Infrastructure Options

The International Development Association (IDA) has been a financial partner of Lao PDR in the latter's various infrastructure development projects. Actual IDA commitments during 2005-2011, for example, amounted to US$360 million for 27 operations, reflecting a marked improvement in IDA-country dialogue after the implementation of the Nam Theun 2 hydropower project in Lao PDR.

The core of IDA financial assistance to Lao PDR has been the poverty reduction support operations, which is in line with the policy agenda of the government’s National Social-Economic Development Plans (NSEDPs). It provided additional aid amounting to about US$86 million through 77 trust funds (TF) for such infrastructure areas as rural electrification and road maintenance (IEG, 2012).

Through IDA, other financial support partners such as AusAID, International Financial Corporation, Japan, and the European Union are potential sources of infrastructure financing. These financing partners had previously cooperated and coordinated effectively with IDA through multi-donor trust funds.

Other noteworthy partnerships with official and private sector partners were also forged during the implementation of the Nam Theun 2 hydropower projects in Lao PDR. In addition, as China and Viet Nam are rapidly becoming

important supporters of infrastructure development initiatives in Lao PDR, IDA has attempted to find modalities for coordinating with these two development partners (IEG, 2012).

Revenues from domestic industries can be another source of financing. For instance, revenues from the Nam Theun 2 projects as well as other hydropower and mining projects flow into the government's coffers and have begun to support eligible development programmes in rural electrification, rural roads, public health, and environmental protection through the Poverty Reduction Fund (PRF) project. The project targets the poorest districts and is based on a community-driven approach to providing development on social infrastructure in Lao PDR (IEG, 2012).

Asian Development Bank is a key financial support partner for infrastructure development in Lao PDR. In the hydropower sector in Lao PDR, ADB has provided funding to the Electricité du Lao PDR (EdL) through the public sector window, acted as the lead coordination agency for the government's negotiations with foreign investors, and provided legal and financial advice to Lao PDR. The Nam Theun 2 hydropower plant is an outstanding example of ADB's financial support for Lao PDR in various forms such as a public sector loan to the government, and a direct loan to the project company without government guarantee (ADB, 2009a).

Other ASEAN member countries as well as bilateral organisations such as the Japan Bank for International Cooperation (JBIC) can also help address gaps in financing the infrastructure development in Lao PDR. That is, if private sector funds prove inadequate, these bilateral organisations can mobilise long-term funds through capital markets or by co-financing, and stimulate market activities through the issuance of prime name credit papers and local currency bonds. They can help improve the flow of private savings and capital into infrastructure investments by developing bankable projects; designing appropriate, innovative financial instruments; assisting countries to enhance local technical capacity and knowledge; enhancing financial market depth, efficiency, liquidity, and adherence to international and regional standards or best practices; and promoting further financial integration in the ASEAN (Bhattacharyay, 2009).

Conclusion

The state of infrastructure in Lao PDR is still poor compared with that of other ASEAN countries. Because of the inadequate government budget, most infrastructure projects are funded by foreign sources, which might led to an accumulation of external debts. So as to promote investment in roads, the government has pre-investment mechanisms, but the costs of projects are high and resources are not allocated with efficiency in mind. This is why appropriate and effective ways to finance infrastructure, including the monitoring system, are crucial. In addition, increasing competition, transparency, and governance can make sure that the procurement becomes cost effective.

It is also important to sustain macroeconomic stability and confidence through improvement of fiscal and financial discipline, and development of a comprehensive guideline for FDIs. Finally, capacity building for government officers is necessary. Specific skills—not just engineering—are required so as to properly assess the costs (including the environmental and social costs) and benefits of projects.

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CHAPTER 5

Malaysia Country Report

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Introduction

As a country, Malaysia represents one of the success stories in the ASEAN in terms of its top-down political commitment to the five-year economic plans. For one, a sizeable government budget is allocated every year for its infrastructure activities. Malaysia is now an upper middle-income country served in most parts by good quality roads and expressways and a system of communication comparable to that of any developed, high-income country in the world. Many of its indicators on infrastructure have reached world-class standards, although there are still disparities in terms of total coverage and quality of infrastructure especially between West Peninsular Malaysia and its eastern counterpart states of Sabah and Sarawak.

For years, Malaysia had not relied much on external sources of infrastructure financing since the government for many years had always managed to source funds internally. However, this also meant that government expenditure has increased tremendously over the years as population, urbanisation, and economic growth continue to put increasing demands on infrastructure.

Since the 1980s, the government has considered the privatisation option—i.e., inviting the private sector as its partner in public-private partnership (PPP) projects—in its attempt to reduce government's burden in sourcing. The PPP model allows a speedier development, making it possible for more projects to be launched within a given window of time than if government funding is the only source of financing. Over the years, the public has also allowed the PPP

model to continue and even shared some of the public infrastructure costs such as in the form of passage fees paid for toll roads.

In the more recent years, however, higher costs of living have led to greater public scrutiny on the way the provision of public services are being met by the government. Hence, new models of financing need to consider not only issues of resource mobilisation and efficiency *per se* but accountability, social justice, and development that supports an inclusive growth and empowers the marginalised as well.

This paper reviews the various government plans and budget allocations for infrastructure in the last 10 years, the financing modes as well as the PPP projects involved. Finally, it looks at Islamic financing—i.e., the use of *sukuk* or the Islamic bond—as a new mode of fundraising from the capital market, leveraging on Malaysia as a platform to attract highly liquid global sources in search of shariah-compliant investment instruments. This liquidity might come from Islamic investors from various parts of the world, including the Gulf. The paper recommends that the ASEAN Connectivity Coordinating Committee (ACCC) and other relevant agencies explore this new method of financing for projects that promote ASEAN connectivity.

Country Overview

Malaysia has a land area of 330,803 sq. km, and population of 28.9 million (see Annex Table 5.11 and Table 5.12). Administratively, it has 11 states and two federal territories (Putrajaya and Kuala Lumpur) in Peninsular Malaysia or West Malaysia. Meanwhile, East Malaysia is separated from the west by the South China Sea and composed of two states (Sabah and Sarawak) and the island of Labuan, a federal territory (Figures 5.1-5.3).

Figure 5.1: Map of Malaysia

Source: http://www.malaysiamap.org/.

Figure 5.2: Peninsular Malaysia

Source: http://www.map-library.com/maps/maps-of-asia/maps-of-malaysia/detailed-road-map-of-west-malaysia.jpg.

Figure 5.3: Sabah and Sarawak

Source: http://travelmalaysiaguide.com/images/Maps/borneo-malaysia-map.jpg.

The Malaysian economy is expected to grow at 4.9 percent in 2014, after declining growth in 2013 at 4.7 percent down from 5.6 percent in 2012. In 2012, domestic demand recorded the highest rate of expansion over the recent years. Following the exceptional growth in capital spending in 2012, the upward trend in public and private investment is expected to remain strong. Private investment, specifically, will be driven by the continued capacity expansion of domestic-oriented firms, ongoing implementation of projects with long gestation periods, and gradual improvement in external demand. Private consumption is projected to grow at a more moderate rate but will continue to be supported by sustained income growth and healthy labour market conditions.

Public sector spending is also projected to see lower growth, as the government consolidates its fiscal position and as the private sector's role gains greater significance.

Financial Position

The federal government revenue in 2013 is expected to increase to RM208.65 billion due to, among others, higher tax revenue of RM159.20 billion. According to the Ministry of Finance, the government aims to continue to safeguard the people's wellbeing while it works to make its public sector service delivery more nimble and responsive in a private sector-led economy. Operating expenditure is projected to decline marginally to RM201.92 billion due to prudent spending. Development expenditure will be allocated a lower sum of RM47.750 billion as well (or 19.1% of the total 2013 expenditure) (Table 5.1).

The economic services sector is allocated the largest slice (62.9%) of the total development expenditure in 2013 at RM30 billion (Figure 5.11 and Table 5.5). Meanwhile, the social services sector is allocated RM11.1 billion, with the education and training sub-sector getting the largest allocation of RM6.5 billion so as to meet the growing demand for a talented, highly skilled, creative and innovative workforce.

The security sector will be provided RM4.6 billion, of which RM3.9 billion is for the defence sub-sector and RM644 million for internal security. The RM2 billion given to the general administration sector is expected to be spent on continued improvements in public service delivery, promotion of higher information technology (IT) usage in the civil service, and repair and maintenance of government facilities nationwide.

Table 5.1: Federal Government Revenue

	RM (million)			% Change		
	2011	**2012[1]**	**2013[2]**	**2011**	**2012[1]**	**2013[2]**
Revenue	185,419	207,246	208,650	16.1	11.8	0.7
Operating Expenditure	182,594	202,617	201,917	20.4	11.0	-0.3
Current Balance	2,825	4,629	6,733			
Gross Development Expenditure	46,416	49,822	47,750	-12.1	7.3	-4.2
Less: Loan Recovery	1,082	2,895	1,024	-11.6	3.5	-0.4
Net Development Expenditure	45,334	46,927	46,726			
Overall Balance	-42,509	-42,297	-39,993			
% of GDP	-4.8	-4.5	-4.0			

Note: [1] Revised Estimate
[2] Budget Estimates excluding 2013 tax measures
Source: Economic Report 2012-2013.

Table 5.2: Federal Government's Development Expenditure by Sector, 2011 - 2013

	RM (million)			% Change		
	2011	**2012[1]**	**2013[2]**	**2011**	**2012[1]**	**2013[2]**
Economic Services of which:	28,156	30,362	30,041	7.8	7.8	-1.1
Agriculture and rural development	1128	1,901	3,297	-61.4	68.6	73.4
Trade and Industry	83,64	5,491	3,297	19.7	-34.3	38.0
Transport	10,140	10,073	9,416	17.0	-0.7	-6.5
Social Services of which:	12,607	13,643	11,113	-39.3	8.2	-18.5
Education and training	7,735	8,557	6,491	-35.8	10.6	-24.1
Health	2,207	1,948	1,919	-41.6	-11.7	-1.5
Housing	762	738	,643	-42.9	-3.2	-12.8
Security	**4,569**	**4,394**	**4,592**	**15.1**	**-3.8**	**4.5**
General Administration	**1,085**	**1,424**	**2,005**	**-43.4**	**31.2**	**40.8**
Total	**46,416**	**49,822**	**47,750**	**-12.1**	**7.3**	**-4.2**
% of GDP	**5.3**	**5.3**	**4.8**			

Note: [1] Revised Estimate
[2] Budget Estimates excluding 2013 tax measures
Total may not add up due to rounding
Source: *Economic Report 2012-2013.*

Ever since the 1998 Asian financial crisis, the federal government's budget has been in deficit. Such deficit, in fact, has increased partly due to the government's initiatives to revive the economy.

As one of the top 20 trading nations in the world, Malaysia is highly dependent on international trade. Thus, global shocks such as the 9/11 attack in 2001 and global crisis of 2008 and 2009 all the more challenged the government's attempts to reduce the fiscal deficit.

The last three years have shown some small success. Deficit as a percentage of GDP is expected to drop from 4.8 percent in 2011 to 4.0 percent in 2013.

Infrastructure Development in Malaysia

West Malaysia is served by major highways that are of world-class standards. North-South Expressway is the longest expressway in Malaysia, running through the whole north-to-south length of the Peninsula. It is about 775 km long from Bukit Kayu Hitam located north of Malaysia, to Johor Bahru on the southern end. Its presence contributed significantly to the development of major sectors of the economy such as manufacturing, transportation, domestic tourism and other services industry such as retailing and banking. It likewise helped connect Malaysia with its neighbouring ASEAN countries Thailand and Singapore.

Another project that bolstered regional connectivity is the Kuala Lumpur International Airport (KLIA). The international airport was moved from its old location in Subang to Sepang at the cost of about RM10 billion (US$3.5 billion). The project was commenced in 1998 via the PPP scheme. Once KLIA was completed, a low-cost carriage terminal (LCCT) by Air Asia was built in 2006. The success and smooth operation of both KLIA and LCCT stimulated not only the Malaysian economy but the regional economy as well.

Since the mid-1990s, the government has been investing significantly in urban transport infrastructure, particularly to restructure the public transport system in the Klang Valley. Among the earlier initiatives were the introduction of the KTM Komuter (KTM), a commuter train service, in 1995; two light transit systems (previously known as the Star LRT) in 1996; and the Kelana Jaya Line (previously known as Putra LRT) in 1998. Subsequently, a high-speed train connecting KLIA and Kuala Lumpur City Centre and operated by Express Rail Link Sdn Bhd (ERL) was launched in 2002. In addition, the KL Monorail System commenced operations in 2003, covering central business districts in the city centre while the RapidKL bus service was introduced in 2004 to provide a comprehensive bus network in the Klang Valley. Currently, all these services, except for KTM and the ERL, are owned

by Syarikat Prasarana Negara Bhd (Prasarana) and operated by Rangkaian Pengangkutan Integrasi Deras Sdn Bhd (RapidKL).

Despite these initiatives, the modal share of public transport in the Klang Valley has declined from 20 percent in 1997 to 12 percent in 2008 due to the population's growing affluence, easy access to vehicle financing and an inefficient public transport system. In 2010, about 83 percent of 7.2 million trips (6 million trips) were made through private transport, mostly involving single-occupancy vehicles. In contrast, average daily ridership on both the urban rail and RapidKL buses grew marginally by 2.6 percent compared with the 7.5-percent increase in private vehicle ownership in the Klang Valley in 2010.

The number of cars in the Klang Valley is expected to reach 7 million by 2020, unless there is a marked shift towards public transport. In addition, a comparison of the public transport modal share in the Klang Valley with other cities such as Tokyo, London, Hong Kong, and Beijing suggests that there is much scope for improvement. The situation warrants concerted and intensified efforts to further increase the modal share of public transport to 50 percent and to place Kuala Lumpur among the top 20 liveable cities by 2020, as outlined in the Greater Kuala Lumpur National Key Economic Area (NKEA). *(Malaysia Economic Report 2011-2012 pp. 58 – 6)*

Recent Initiatives

The government introduced several new initiatives to improve the quality of urban public transport (UPT) service—a common public concern—in the Klang Valley. Thus, the UPT National Key Result Area (NKRA) was launched in 2009 to provide an efficient, reliable and integrated UPT system with adequate facilities and connectivity for the people. Other initiatives pertain to the rail and bus services, the support infrastructure as well as the establishment of the Land Public Transport Commission (or SPAD), which looks into the following modes of transport:

Rail System

- KTM Komuter
- Light Rail Transit
- Monorail
- My Rapid Transit

Bus Services

- RapidKL
- Bus Expressway Transit

Supporting Infrastructure and Systems

- Integrated Transport Terminals
- Bus Stops and Train Stations
- Integrated Ticketing System

Government Agenda (Economic Transformation Programme)

The Economic Transformation Programme (ETP) is the government's economic agenda as a response to national economic challenges. There are four common foundations for the ETP:

1. Malaysia, People First, Performance Now

The 1Malaysia concept aims for national unity while respecting the values of different communities. It is anchored on the principle of fairness and equity—meaning that opportunities and growth will be shared equitably. Meanwhile, People First is an approach to planning and delivery. Performance now, as the title implies, reflects the government's resolve towards delivery and results.

2. Government Transformation Programme

The Government Transformation Programme (GTP) was introduced in 2010 to transform the government's effectiveness in the delivery of services and to sharpen accountability for outcomes. It features six NKRAs: reducing crime, fighting corruption, improving student outcomes, raising living standards of low-income households, improving rural basic infrastructure and improving urban public transport. The next section below details the progress of this programme.

3. New Economic Model

The government established an independent National Economic Advisory Council (NEAC) to develop recommendations on the design of a new economic model. The council's report in April 2010 analysed the challenges and opportunities facing the Malaysian economy and recommends eight strategic reform initiatives.

4. 10th Malaysia Plan

The 10th Malaysia Plan, which outlines the government's development plan for the next five years, aims to focus on economic growth, promoting inclusive socio-economic development, developing and retaining talent, building an environment that enhances quality of life and transforming government. It identifies the 12 NKEAs that will receive prioritised policy and investment.

Infrastructure Development and the GTP

As the year 2020 comes closer, the lesser time is there left for Malaysia to become a developed, high-income nation. Specifically, it has less than a decade left to raise its status to the level of a developed nation. While urban towns and cities have good roads and other infrastructure development, there are still pockets across the country, especially in big states such as Sarawak, where infrastructure is still below developed-country standards.

Fortunately, Malaysia has already embarked on a plan to effect its transformation. At the heart of the plan is the GTP, an ambitious, broad-based

programme of change to fundamentally transform the government into an efficient and people-centred institution. Currently, infrastructure development is covered by the GTP.

Of the programme's six NKRAs, those that relate to infrastructure are:

A. Improving Rural Development

B. Improving Urban Public Transport

5. The First Phase (GTP 1.0, Pre-2013)

The first phase of the GTP (GTP 1.0) started in 2010. The GTP 1.0 aimed to arrest the decline in the NKRAs and to change mindsets in support of the transformation. It also helped the government measure the effectiveness of its targeted approach, and understand how best to achieve its overall targets. Quantifiable National Key Performance Indicators (NKPIs) of GTP 1.0 were established to determine the success of each initiative.

6. Gtp 1.0 Accomplishment (Pre 2013)

Improving Rural Basic Infrastructure

About 4.5 million Malaysians now enjoy the benefits from the GTP 1.0 programme. The GTP 1.0 had focused on basic infrastructure such as road and clean water (although other infrastructure needs such as housing remain a concern). Despite a budget cut of RM3 billion, GTP 1.0's achievements are rather impressive, as described in the section below.

Increasing Access to Paved or Gravel Roads. One test of the programme's success is to look at the percentage of Malaysians living within 5 km of a paved, gravel road and lateritic road. Results show that by the end of 2012, about 3,147 km of roads was completed. The following statistics show the percentages of Malaysians benefiting from the pave roads:

- 98.6 percent of Peninsular Malaysia’s rural population
- 87.0 percent of Sabah’s rural population
- 86.0 percent of Sarawak’s rural population

The key performance indicator (KPI) for 2011 was to complete the construction of 905 km of road—which was surpassed as 1,013 km of roads were completed.

Increasing Access to Clean or Treated Water. Access to clean water is a top priority in Malaysia's rural basic infrastructure plans. By end of 2012, GTP 1.0 is expected to give 310,742 homes access to clean or treated water. The geographic breakdown of the current access to clean water or treated water is as follows:

- 99 percent of Peninsular Malaysia's rural population
- 79 percent of Sabah's rural population
- 90 percent of Sarawak's rural population

Ensuring 24-hour Access to Electricity. Twenty-four-hour access to electricity, a necessity for improving the quality of life of rural Malaysians, is also a main contributor to the industry and to economic growth. By year of 2012, the rural basic infrastructure initiatives will ensure that an additional 93,712 houses will have 24-hour power access.

Geographically, the breakdown is as follows:

- 99.8 percent of Peninsular Malaysia's rural population
- 88.7 percent of Sabah's rural population
- 82.7 percent of Sarawak's rural population

In 2011, the government's target of 26,882 homes was surpassed as it was able to get 27,004 homes attached to the power grid.

Building and Restoring Houses for the Rural Poor. The rural basic infrastructure NKRA includes programmes for those living in dire poverty. Among these is to provide financial aid to the rural poor. As resources were limited, the government had to ascertain that only qualified poor households received this support. Thus, over the past three years, 50,000 homes in rural areas received the government's housing assistance. In 2011, a total of 14,365 homes were build and restore, surpassing the target of 9,146 homes.

Improving Urban Public Transport (UPT)

The GTP 1.0 was also successful in improving accessibility and connectivity in urban public transport. Currently, the NKRA is on track in the Greater Kuala Lumpur/Klang Valley and is also addressing the city's traffic congestion problem.

Initiatives covering four core transport categories—i.e., Bus, Rail, Integration and Network—were implemented in the past three years.

Increasing Capacity of Inter- and Intra-City Trains. In 2011, GTP 1.0 introduced 35 four-car sets for the Kelana Jaya LRT line to increase the daily passenger capacity from 254,745 (the previous year's figure) to 258,156 passengers. It effectively allowed 18 percent (or 10.4 million) more commuters to travel through the line. Statistics shows a ridership of about 44,170 passengers during peak periods.

Four six-car sets from Malaysia's other train service provider, Keretapi Tanah Melayu Bhd (KTMB) started operations in March 2012, helping to alleviate the traffic during rush hours by increasing the ridership by an additional 32,000 persons. Rail usage presently accounts for about 40 percent of the daily public transport ridership.

Enhancing the Bus Experience. To encourage the use of buses as a form of public transport, 1,102 bus stops were upgraded in Sepang, Subang Jaya, Ampang Jaya, Selayang, Shah Alam, etc. in 2011. In the Klang Valley, 470 RapidKL buses were introduced. Thus, 4.04 million more passengers were recorded to have used the service in 2012 compared to the preceding year. In addition, the design and planning of 306 new bus stops are currently under way.

Refurbishing and Re-Designating Pudu Sentral. The 35-year-old Puduraya Terminal was redesigned to provide passengers a better and hassle-free travel experience. The Terianl, renamed to Pudu Central, is an air-conditioned bus terminal with 50 ticket counters and officially opened on 16 April 2011.

Introducing Terminal Bersepadu Selatan. To avoid congestion of public transport in the city centre, the Integrated Transport Terminal Bandar Tasik Selatan (ITT BTS), or *Terminal Bersepadu Selatan*, began its full operations on 1 March 2011. The RM570-million ITT BTS consists of 55 bus platforms,

150 taxi bays, 1,000 parking bays and 1,800 seats for the public, all within its air-conditioned waiting halls. Its facilities boast of a computerised ticketing system, restaurants, and retail outlets. An electronic bus schedule of arrivals and departures allows travellers to obtain real-time updates on travel times.

7. Enhancing Change (GTP 2.0)

Following the successes achieved in GTP 1.0, the second phase known simply as GTP 2.0 started in 2013. This next phase aims to further expand and enhance the GTP 1.0 initiatives that proved to be effective, as well as to introduce new initiatives.

Improving Rural Development (Plan after 2012)

The two main areas of focus under GTP 2.0's rural development component are:

- To complete the infrastructure work begun in GTP 1.0; and
- To enhance the rural economy and ensure that rural residents enjoy the same opportunities as those in the urban area.

The aim here is for rural folks to have better incomes and access to the markets, enough to encourage the new generation of Malaysians to stay and develop their own villages. This is part of the effort to transform Malaysia into a high-income nation.

Completing the Development of Rural Basic Infrastructure. The government is committed to follow through the initiatives started in GTP 1.0 and deliver on its initial promises to the rural people. In addition, a new component—namely, the maintenance of infrastructure—will also be included in GTP 2.0.

The targets under this second phase are summarised in Figures 5.4 to 5.6:

Figure 5.4: Improved Roads

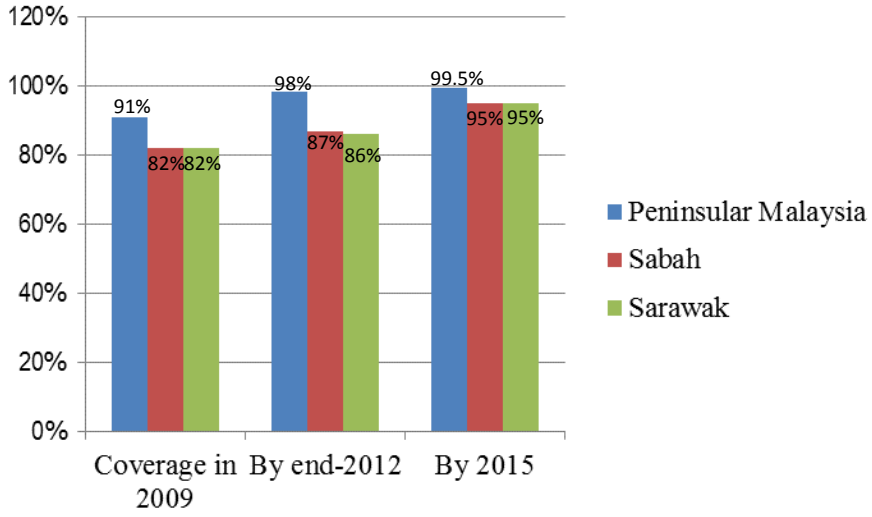


Figure 5.5: Access to Clean or Treated Water

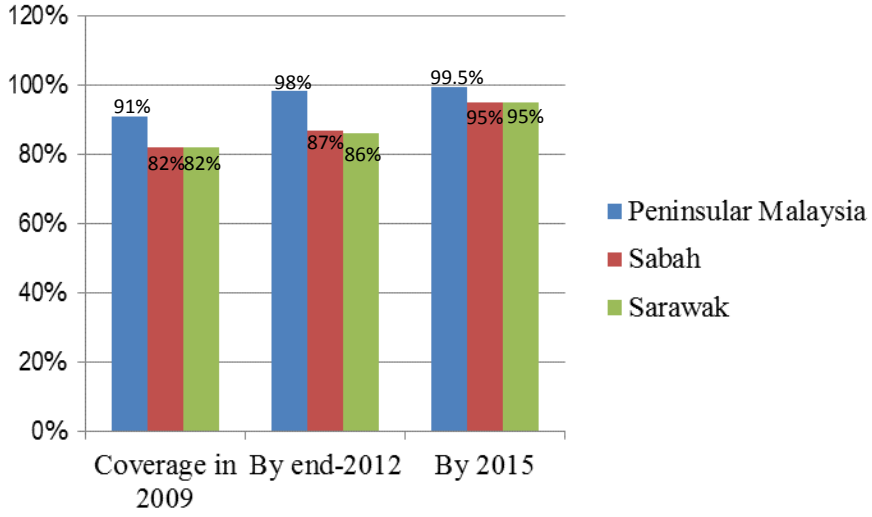
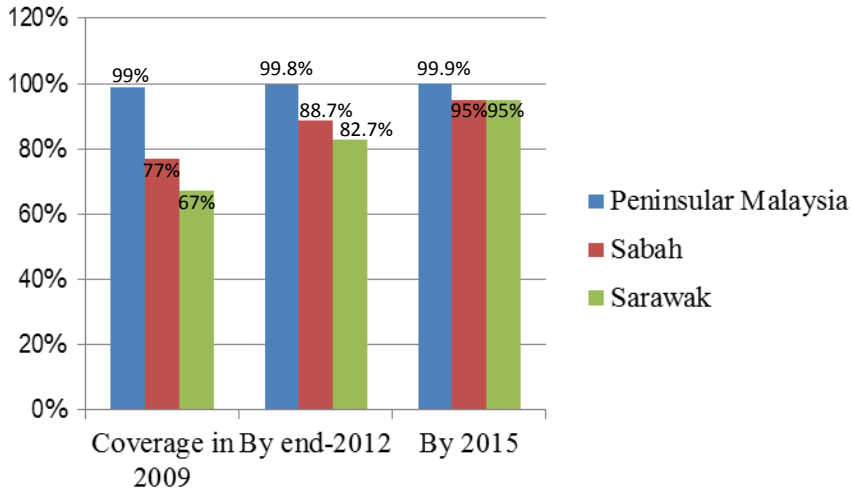


Figure 5.6: 24-hour Electricity



Under GTP 2.0, supporting initiatives will be introduced to maintain and ensure satisfactory delivery of the utilities. These include:

- Upgrading the existing water supply distribution and treatment system so as to ensure that the expansion of water delivery will not overly tax the existing supply;
- Implementing the rural electrification programme so as, among others, to connect schools in rural areas to the main grid and to reduce their dependence on diesel generators, thereby lessening their fuel cost and stabilising their supply of electricity;
- Using hybrid systems to deliver electricity to rural households;
- Monitoring and maintaining roads and power generators in rural areas.

Improving Urban Public Transport

In urban public transport, the GTP will focus on the Greater Kuala Lumpur/Klang Valley area. However, a "watching brief" mechanism will be rolled out to monitor those initiatives implemented in other cities, particularly in key economic corridors.

Enhancing the Bus System. Three initiatives in the Greater Kuala Lumpur /Klang Valley region aim to enhance the bus system:

- A systematic bus network will consider the number of operators per route and require that all stage buses stop at dedicated Inter-Urban Transport Terminals (IUTT) located at the periphery of the central business district. Other sub-initiatives include:
  - Establishing city-bus service within the central business district
  - Reorganising the stage bus and feed bus network
  - Monitoring bus lanes and stage bus drivers.
- Implementing the Bus Rapid Transit (BRT) to provide express service around the entire Klang Valley area. Three projects are in the offing:
  - Kuala Lumpur – Ampang route: 69,000 passengers (pax) daily
  - Kuala Lumpur – Puchong route: 52,000 pax daily
  - Kuala Lumpur – Melawati route: 79,000 pax daily
- Enhancing bus stops by labelling and indexing; and establishing the minimum number of bus stops, either by building new bus stops or upgrading existing ones.

Enhancing the Rail System. The rail system is touted as the most-utilised mode of public transport in the country. Under GTP 2.0, initiatives aim to enhance the entire rail system serving the Greater Kuala Lumpur/Klang Valley area—namely, the inter-city KTM Komuter trains, the inter-city RapidKL Light Rail Transit, and KL Monorail. These are:

- Rolling out rehabilitation programmes, power upgrades of KTMB's networks as well as upgrade of the communication and electrification system to increase the reliability and efficiency of the KTM;
- Extending the Kelana Jaya and Ampang LRT lines;
- Increasing the KL Monorail's capacity.

Transforming Malaysia's Taxi System. The second phase of GTP aspires to upgrade the services provided by taxi providers in Malaysia, especially in urban areas. In particular, the NKRA intends to at least be on a par with the best in other ASEAN countries. The initiatives include:

- Implementing a centralised taxi service system so as to enhance the enforcement and monitoring capabilities of industry regulators and taxi operators.

- Introducing a new business model aimed at lowering the operating costs incurred by taxi drivers. The SPAD, which regulates the taxi industry, will reach out to owners of repair and maintenance facilities in Greater Kuala Lumpur/Klang Valley and ask them to devise attractive packages that draw on economies of scale. In addition, it will also coordinate with car manufacturers to look at leasing options that can reduce the amount of down payment for car loans upon renewal of vehicle permits.

8. The Future and Beyond (GTP 3.0)

The third instalment, GTP 3.0, will be the final phase to be launched in 2015. It will factor in feedback on the impediments brought about by the two previous phases and aim to establish new innovative governance structures that are people-centred.

Factors Contributing to Infrastructure Development

- **Sustained economic growth over the past years.** Malaysia recorded an annual GDP growth average of 6.2 percent over the period 1990-2005. Although growth had been at a much lower trajectory after the 1998 Asian financial crisis, infrastructure development continued. In addition, both rapid urbanisation and high population growth sparked the demand for basic infrastructure.

- **Privatisation and fiscal position.** In the early 1980s, privatisation and private sector-led growth took place when fiscal deficits as well as inefficiencies of state-owned enterprises and government agencies handling the infrastructure services such as ports, electricity, telecommunications and highways became an issue. A change in policy stance emphasised privatisation and enabled some infrastructure development (e.g., in the telecommunications industry) to be commercialised.

- **Development of PPPs.** The PPP as a new business model enables the private sector to participate and can reduce the government's burden in raising funds for infrastructure projects. Such made it possible for the government to complete the more high-cost infrastructure. The establishment of the PPP Unit (the *Unit Kerjasama Awam Swasta*, or UKAS) in Malaysia, which monitors and supervises Public-Private Partnerships, has worked to ensure efficiencies in infrastructure development

- **Domestic financing capabilities.** In the first half of the decades 1970s, 1980s and 1990s, gross capital formation generally exceeded savings as mirrored in the current account deficits. During the 1990-2005 period, the country's gross national savings averaged 34.5 percent of GDP while gross capital formation averaged 31.4 percent, giving rise to a positive savings-investment gap of 3.1 percent of GDP in current prices, which enabled the banking and capital market to tap into this domestic savings and channel such into investments that funded infrastructure development.

- **Dynamic involvement by government-linked companies and agencies.** In Malaysia, more than 40 government-linked companies and agencies operated and participated in various phases of infrastructure projects ranging from project identification, building and construction, operation and maintenance, and investment as an equity or bondholder.

- **National initiatives.** Government plays an important role in promoting the participation of various stakeholders, especially government-linked companies and agencies, in their national agenda. Its robust and comprehensive plans contribute significantly to infrastructure development.

Malaysian Role in Promoting MPAC Initiative

The Master Plan on ASEAN Connectivity (MPAC) was developed and created so as to achieve connectivity among ASEAN member countries. This strategic document covers the initiatives to be undertaken from year 2011 until their completion in 2015. Participating member countries are assigned to

each project and required to ensure these projects' completion. Table 5.3 shows the list of projects directly coordinated and monitored by Malaysia.

Table 5.3: Malaysian role in MPAC project

Project	Malaysian Role	Current Status	Remarks
Singapore Kunming Rail Link (SKRL) Missing Links	Coordinating Country (Ministry of Transport Malaysia)	Seeking technical assistance and funding	Target Completion Date: December 2015
Melaka – Pekanbaru Power Interconnection Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT)	Coordinating and Implementing Country (Tenaga Nasional Bhd)	Seeking financial resources for the whole project. Detailed Terms of Reference (TOR) prepared for the undersea submarine cable survey. Contract to be awarded soon and survey would be completed by the end of first quarter of 2012.	Target Completion Date: December 2015
West Kalimantan – Sarawak Power Interconnection BIMP – EAGA	Implementing Body (Sarawak Energy Bhd)	Term Sheet for a Power Exchange Agreement (PEA) between Sarawak Energy Bhd (SEB) and PT PLN Persero (PLN) for the export of bulk electricity from Sarawak to West Kalimantan was signed in Jakarta in July 2011.	Budget Estimated Total Project Cost: US$ 161 million. Malaysia: US$ 41 million, Indonesia: US$ 120 million Funding Partner(s): Asian Development Bank (ADB).

Source: website www.asean.org on ASEAN Connectivity: Project Information Sheet 2012

Sources of Infrastructure Financing in Malaysia

National Source

The government plays a prominent role in ensuring the development of infrastructure. One of the sources of funds for infrastructure projects is the

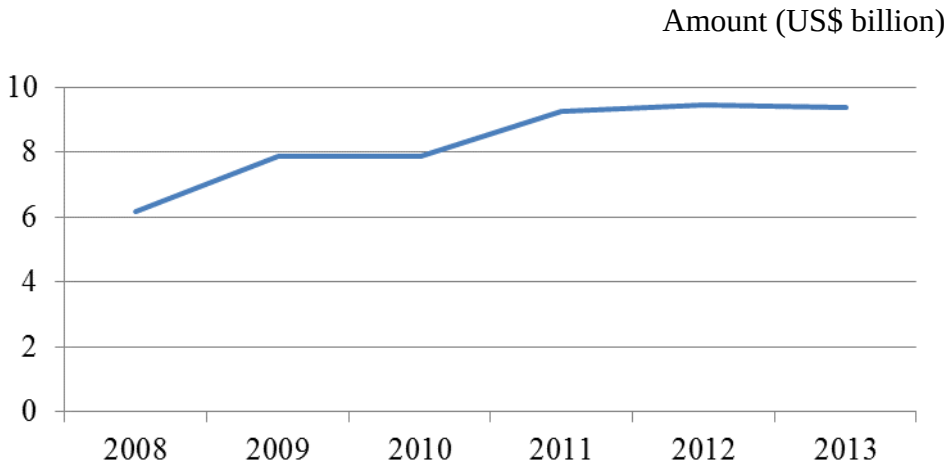
national budget. Thus, Malaysia's annual budget covers both its operating and development expenditure, including those on infrastructure as this has always been the government's focus in its attempt to make Malaysia a developed nation by 2020. Table 5.4 and Figure 5.7 show the trend in the budget allocated for infrastructure development:

Table 5.4: Budget Allocation for Infrastructure Development

Year	Amount (US$ billion)	% growth
2009	7.88	27.51
2010	7.89	0.13
2011	9.25	17.24
2012	9.44	2.05
2013	9.38	-0.63

Source: Ministry of Finance.

Figure 5.7: Budget Allocation Trend



Source: Ministry of Finance.

The budget allocation from the federal government had an increasing trend until 2013, where it slightly dipped at only 0.63 percent. The next sub-topics discuss the details of the infrastructure budget for the recent years.

9. Malaysian Budget 2012

In Malaysia's 2012 budget, rural infrastructure development is the government's third area of focus (Malaysian Government Budget, 2011, as gleaned from the following details:

1) The government will implement several measures in the Rural Transformation Programme (RTP) that complement the national transformation initiatives as follows:

   - The government will establish Rural Transformation Centres (RTCs) to offer integrated services including collecting, processing and distributing agricultural products; banking and insurance, business advisory services; training and skills; as well as providing clinics and retail space. For a start, the existing National Agrobusiness Terminal (TEMAN) in Wakaf Che Yeh, Kelantan and Gopeng, Perak will be developed as RTC pilot projects. In addition, four more RTCs will be developed in Kedah, Johor, Sabah, and Sarawak;

   - Bank Simpanan Nasional, which is a community bank as well as commercial bank, will provide RM100 million as soft loans at an interest of 4 percent. This loan instrument meant as a financing scheme will be given a stamp duty exemption and will form the Professional Services Fund to encourage professionals such as lawyers, doctors, and accountants to set up firms in small towns;

   - The amount of RM110 million will be allocated to implement the Rural Mega Leap Programme covering 6,500 ha in 11 agropolitan projects nationwide for the cultivation of commodity and cash crops as well as fish caged culture. Also, the Rubber Industry Smallholders Development Authority (RISDA) will be given an allocation of RM140 million to implement new planting and rubber re-planting programmes that will benefit 20,000 smallholders.

2) RM5 billion will be allocated to strengthen the development of rural basic infrastructure in a more comprehensive manner. From the total, RM1.8 billion will be for the Rural Road Programme and Village-Link Road Project involving 2,749 km of roads that will benefit 1.76 million rural households. In addition, RM2.1 billion will be assigned to expand the supply of clean water to 200,000 houses while RM1.1 billion will be for the provision of electricity supply to 39,000 houses in the rural areas, particularly in Sabah and Sarawak.

3) The amount of RM500 million will be allocated to continue the upgrade of basic infrastructure under Projek Penyelenggaraan Infrastruktur Awam (PIA) and Projek Infrastruktur Asas (PIAS), particularly in the rural areas, where it will provide opportunities to 29,000 Class F contractors.

4) To cover the cost of an additional 20,000 water tanks for rainwater harvesting for 100,000 people living in the interiors of Sarawak, RM102 million is set aside for water supply reticulation projects. Another RM50 million will be used to expand the programme to Sabah.

5) The amount of RM400 million is meant for the upgrade of the water supply infrastructure in selected Federal Land Development Authority (FELDA) areas, particularly in Pahang, Kedah, Kelantan, and Terengganu.

6) Bank Simpanan Nasional will provide RM50 million for systems development, training of agents and operational costs so as to provide rural folks greater access to banking services. Financial services to be provided by appointed agents in rural areas include saving and withdrawal transactions, bills payment as well as purchase of premium savings certificates.

7) From 1 January 2012, an additional RM150 million will be allocated to the Public Transport Development Fund of the SME Bank. The fund is a special financing facility that offers soft loans to stage, mini and school bus operators at an interest rate of 4 percent. The loan can be used for purchasing or refurbishing buses.

8) The RM90 million is for the provision of basic necessities that include the extension of the clean water supply project as well as income-generating programmes for 190,000 individuals in the Orang Asli area. An additional RM 20 million is for the home relocation of those affected by the landslide at Sungai Ruil, Cameron Highland.

10. Malaysian Budget 2013

In 2013, a total of RM4.5 billion is allocated for various development projects in rural areas such as:

1) Development of 441 km of rural roads and village link roads to benefit 220,000 villagers (RM1.2 billion).

2) Rural utility infrastructure projects for the provision of water supply to 24,000 houses and electricity supply to 19,000 houses (RM1.6 billion).

3) *Program Desa Lestari* involving 29 villages nationwide and benefiting 38,000 villagers (RM137 million).

4) Economic development programmes and water supply projects for the Orang Asli community (RM88 million).

5) A total of 40,000 water tanks for rainwater harvesting, particularly in the interiors of Sabah and Sarawak (RM100 million).

Public-Private Partnership in Malaysia

Malaysia's privatisation policy was launched in 1983, when the Special Task Force in the Economic Planning Unit (EPU) of the Prime Minister's Department was established to coordinate the implementation of the policy. In 1991, the government published the Privatisation Master Plan and renamed the Special Task Force into the Privatisation Section of the EPU. In 2009, the Privatisation Section was transferred to a new dedicated agency known as the Public-Private Partnership Unit or UKAS (Unit Kerjasama Awam Swasta, formerly known as 3PU).

To allow privatisation to take place, the government passed the following:

- The Federal Roads Act (Revised 1989)
- Tolls (Road and Bridges) Act 1965 (Revised 1989)
- Port Authorities Act 1963 (Revised 1992)

To facilitate the privatisation process, the government ratified the following:

- Abattoirs (Privatisation) Act 1993
- Sewerage Services Act 1993
- Highway Authority Malaysia (Incorporation) Act 1980
- Ports (Privatisation) Act 1990
- Water Services Industry Act 2006
- National Water Services Commission Act 2006
- Street, Drainage and Building Act 1974

- Town and Country Planning Act 1976
- Local Government Act 1976
- Control of Padi and Rice Act 1994.

The following guidelines and key publications on PPP were released (UKAS website[1]:

- Malaysian Incorporated Policy 1983
- Privatisation Policy 1983
- Guidelines on Privatisation 1985
- Privatisation Master-plan 1991
- Private Finance Initiative under the
- Ninth Malaysia Plan 2006
- Procurement Guidelines for the Implementation of Projects under the Private Finance Initiative (PFI), Treasury letter, 14 September 2006
- Guidelines on Public Private Partnership 2009
- Private Finance Initiative under the 10th Malaysia Plan.

11. Unit Kerjasama Awam Swasta (UKAS)

The establishment of UKAS has facilitated the government's evaluation of PPP projects and processing of potential project proposals for the Cabinet's final decision. It is responsible for monitoring the implementation of PPP projects and acts as secretariat for the government's projects in the five economic corridors (i.e., the East Coast Economic Region, Iskandar Malaysia, Sarawak Corridor for Renewable Energy, Sabah Development Corridor, North Corridor Economic Region). It also oversees the Facilitation Fund from the national budget. Before final decisions are made, UKAS negotiates the terms and conditions in PPP agreements.

[1] http://www.ukas.gov.my/en/latar-belakang;jsessionid=48158A2D18481435552682B243424832

12. Parties Involved in PPP (see Annex C)

- Special Purpose Vehicles created specifically for the project
- Debt Investor
- Construction Contractor
- Facilities Management Operator
- Ministry/Related Agencies and Users

13. Achievements in PPP Implementation

Table 5.5 describes the achievements in PPP projects from 1983 to 2012. The impact can be gleaned by comparing the data from year 1983 to 2010 and data from year 1983 to 2012. The total number of projects signed from year 2010 to 2012 increased by 15.40 percent in two years. New projects did not affect jobs in the government's payroll at all. The capital expenditure increased by 6.61 percent in two years with no proceeds from sales of government equity and assets. The market capitalisation increased by 12.34 percent.

Table 5.5: PPP Achievements

	1983 - 2010	1983 - 2012	%growth
Total Projects Signed:	513	592	15.40
Existing projects	348	542	55.75
New projects	165[1]	50[2]	
Jobs eliminated from government payroll	113487	113,487	0.00
Savings:			
Capital expenditure (RM billion)	163.8	174.62	6.61
Operating expenditure (RM billion)	9.00	9.25	2.78
Proceeds from sales of government equity and assets (RM billion)	6.5	6.5	0.00
Market capitalisation (RM billion)	208.3	234.0	12.34
% of total Bursa Malaysia Capitalisation	*16.30%*	*15.97%*	*-2.02*

Note: 1 From 1983 to 2010
2 From 2011 to 2012

Sources: UKAS (www.ukas.gov.my).

Table 5.6 shows the implemented projects by economic sectors from 1983 to 2010. Infrastructure projects would mostly be in the electricity, gas, water, government services, other services, construction, and transport and communications, all of which account for over 55 percent of all PPP projects.

Table 5.6: Implemented PPP Projects by Economic Sectors, 1983-2010

Sector	% of total
Agriculture and Forestry	6.2
Electricity, Gas and Water	8.2
Wholesale, Retail Trade, Accommodation and Restaurant	11.1
Finance, Real Estate and Business Services	10.7
Government Services	7.4
Other Services	9.2
Mining and Quarrying	3.9
Manufacturing	13.6
Construction	16.6
Transport, Storage and Communications	13.1
Total	100.0

Source: Malaysia Economic Report 2011-2012.

ASEAN Infrastructure Fund – Strengthening Integration

While ASEAN faces large infrastructure deficits, it also holds significant regional savings. In this context, the proposal to mobilise ASEAN savings towards regional infrastructure development was first suggested by Malaysia at the 10th ASEAN Finance Meeting in Cambodia in 2006. Thus, the ASEAN Infrastructure Fund (AIF) was created. Malaysia has since chaired a series of High-Level Task Force Meetings composed of ASEAN senior finance officials to explore the best framework and mechanism for the AIF.

In September 2011, nine ASEAN member states and the Asian Development Bank (ADB) reached a consensus to provide equity contributions in three tranches amounting to US$485.2 million for the AIF. Of this total, Malaysia contributed US$150 million (Table 5.7). The equity contribution will be augmented with hybrid capital after four to five years of operation. Once the AIF has established a credible track record, bonds will be issued.

Table 5.7: Equity Contribution for ASEAN Infrastructure Fund, in US$ million

Shareholder	1st tranche (2012)	2nd tranche (2013)	3rd tranche (2014)	Total
Brunei Darussalam	3.4	3.3	3.3	10.0
Cambodia*	0.1	-	-	0.1
Indonesia	40.0	40.0	40.0	120.0
Lao PDR*	0.1	-	-	0.1
Malaysia	50.0	50.0	50.0	150.0
Philippines	5.0	5.0	5.0	15.0
Singapore	5.0	5.0	5.0	15.0
Thailand	5.0	5.0	5.0	15.0
Vietnam	3.4	3.3	3.4	10.0
ADB	50.0	50.0	50.0	150.0
Grand Total				**485.2**

Note :* One-time payment
Source: Economic report 2012-2013 pp. 47.

Bond issuance is an important feature of the AIF's business model, as it is designed to tap the region's substantial foreign exchange reserves while maintaining reserve eligibility based on the AIF's expected high investment-grade credit rating and sufficient liquidity. To operationalise the funds, the ASEAN Infrastructure Fund Limited was incorporated on 24 April 2012 in Labuan, Malaysia under the Labuan Companies Act 1990. The primary aim of the company is to provide loans to ASEAN member states for financing infrastructure projects in transport, telecommunications, and utilities sectors.

During its initial years of operation, the AIF focused only on sovereign projects, including those within public-private partnerships scheme.

Parallel to this development, Malaysia's leadership role as co-chair of the AIF Board of Directors along with Indonesia, reflects its commitments towards promoting regional economic growth and integration. Malaysia's profile and reputation as a progressive and proactive ASEAN member was reinforced by its role in the establishment of the AIF and by the fact it is the largest shareholder, along with the ADB (Malaysian Economic Report, 2013).

Islamic Infrastructure Financing

Project finance is a method of raising long-term financing for major projects based on lending against the cash flow generated by the project alone. This refers to the fact that project sponsors or creditors are repaid or earn a return solely from the revenue that is generated by the sale of the project's output. Project finance depends on a detailed evaluation of a project's construction; operating and revenue risks; and the allocation of such risks among investors.

As an effective alternative to conventional direct financing, Islamic infrastructure financing became popular in some countries. In Islamic finance, taking or receiving interest (*Riba*) in loan transaction is prohibited. Risks in any transaction must be shared between at least two parties so that the provider of capital and the entrepreneur share the business risk in return for a share in profit. Besides riba, other prohibitions include speculative behaviour and extreme uncertainty or risk (*Gharar*) and gambling (*Maysir*); thus, Islamic financing requires contractual obligations and clear disclosure of information. Islamic finance follows a set of rules—the *shariah*—and to be shariah compliant, investments must not violate the rules of shariah, as well as not be involved in generally non-ethical investments—i.e., those relating to businesses in alcohol, pork-related products, conventional financial services, entertainment (gambling and casinos, pornography), weapons, and defence.

14. Sukuk and its Role in Project Financing

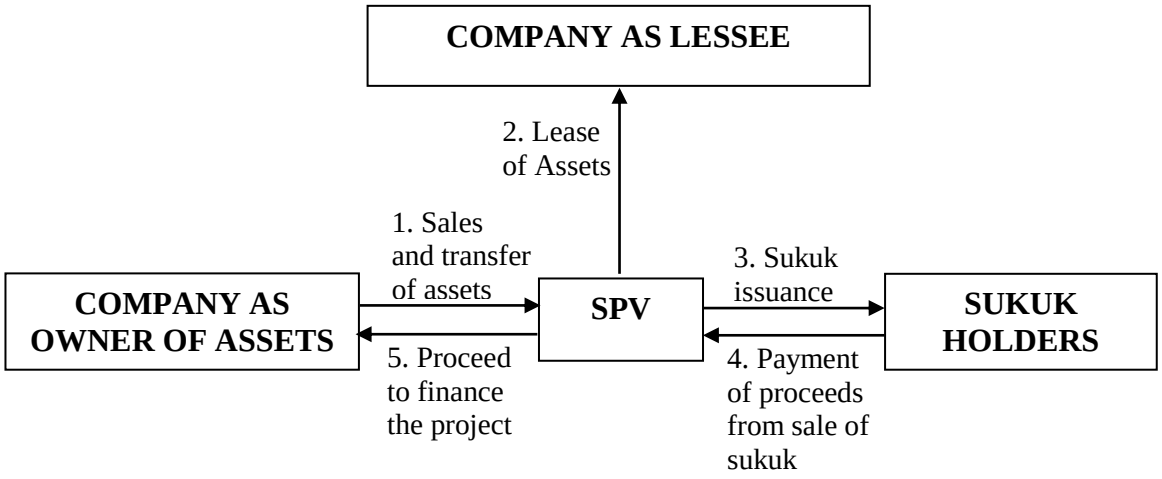
Sukuk (Islamic bond) is a fixed-income certificate that is permissible within the provisions of Islamic Law known as Shari'a, as they are raised during

trading in or construction of specific identifiable assets. The certificate is structured in such a way that it generates returns to investors.

There are differences and similarities between sukuk and conventional bonds. A conventional bond is a contractual debt obligation whereby the issuer is contractually obliged to pay bondholders according to the agreed interest and period. This differs with sukuk. That is, sukuk holders each hold an undivided beneficial ownership of the underlying assets and are entitled to share the profits realised from the sukuk assets. However, both conventional bond and sukuk are marketable and can be traded in financial markets as well as easily rated by ratings agencies.

Sukuk is fast becoming an alternative and attractive source of financing in many countries, especially Malaysia and the Middle East, for the government's development projects. For example, Islamic Development Bank (IDB) has issued RM400 million (US$120 million) sukuk in local currency in Malaysia during 2008 to finance toll roads in Malaysia (IDB, 2012). How sukuk plays its role in project financing is best explained in Figure 5.8:

Figure 5.8: Basic Transaction Structure of Sukuk al Ijarah



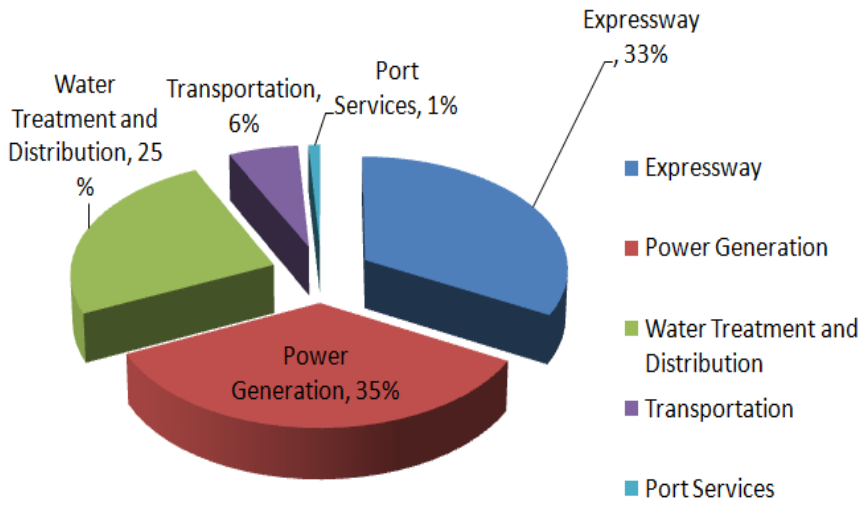
The illustration shows an example of how sukuk is used to finance a project. The company as owner of the asset makes a sale and transfer of such assets to the special purpose vehicle (SPV), which was established by the company as lessee. Then, SPVs will issue sukuk to investors in exchange for the periodic

distribution amount (profit) as well as the dissolution amount upon redemption. The SPV then gives sukuk's proceeds to the company as lessee in exchange for utilisation of the assets. The proceeds from the sukuk issuance will be used to finance the project.

Islamic Fundraising for Infrastructure Projects in Malaysia from 2000 to 2009

The following lists the specific projects funded by Islamic bonds since 2000, followed by a more detailed description on select Islamic PPP projects. Figure 5.9 also shows the breakdown of financing by sector. As we can see there are quite diverse sectors involved showing large utilisation of sukuk. As typical PPP projects, power sector dominates the amount of project size, followed by expressway and water treatment.

Figure 5.9: Islamic Fundraising by Subsector



Power Generation

- Total Issuance : RM36.7 billion (19 issuers)
- Tenure : between five and 20 years
- Examples:-

i Malakoff – RM7.9 billion (20 years) Musharakah (AA3)

ii Jimah Energy RM4.8 billion (20 years) Istina' (AA3)

iii Mukah Power RM950 million (22 years) Mudharabah (AA3)

iv Kapar Energy RM3.4 billion (15 years) BBA (AA+)

Water Treatment & Distribution

- Total Issuance : RM25.7 billion (5 issuers)
- Tenure : between 10 and 20 years
- Examples:-
    i. Pengurusan Air SPV Bhd RM20 billion (10 years) Ijarah/Musyarakah (AAA)
    ii. Syarikat Bekalan Air Selangor RM3 billion (20 years) BBA (AA-)
    iii. Puncak Niaga RM 1.02 billion (10 years) Murabahah (AA)

Transportation

- Total Issuance : RM6 billion (1 issuer)
- Tenure : between 15 and 20 years
- Examples:-
    i. Syarikat Prasarana Negara – RM4 billion (20 years) Ijarah MTN (Government guarantee)
    ii. Syarikat Prasana Negara RM2 billion (15 years)

Expressways

- Total Issuance : RM34.6 billion (20 sukuk issuers)
- Tenure : between four and 29 years
- Examples:-
    i. PLUS SPV – RM4 billion (18 years) – Musharakah (AA1)

ii. Projek Lintasan Shah Alam – RM415 million (29 years) – Mudharabah (A3)

iii. KESAS – RM100 million (4 years) – Murabahah (AA3)

iv. Penang Bridged – RM695 million (13 years) – Istisna' (AA2)

v. SPRINT – RM510 million (20 years) – BBA (A2)

Port Services

- Total Issuance : RM0.98 billion (2 issuers)
- Tenure : Between 14 and 15 years
- Examples:-

i Kuching Port Authority – RM180 million (14 years) BBA (AAA)

ii Westports – RM800 million (15 years) – Musyarakah (AA+)

15. Description of Select Islamic PPP Projects

PLUS (Projek Lebuhraya Utara Selatan). The PLUS programme involves RM11 billion worth of GG sukuk issuances and RM19.6 billion of AAA issuances, both on a bought deal and on private placement bases. The non-government guarantee component could be increased to RM23.35 billion.

The issuances were through PLUS Malaysia Sdn Bhd in year 2012, a jointly owned special purpose company of UEM Group Bhd and the Employees Provident Fund (EPF). The entity was set up to acquire the business and undertakings, including the assets and liabilities of PLUS Expressways Bhd via the issuance of the GG Sukuk and AAA Sukuk Musharakah.

PRASARANA. Syarikat Prasarana Negara Bhd (Prasarana), the Malaysian public infrastructure company wholly-owned by the Ministry of Finance, successfully issued RM2 billion Government-Guaranteed Sukuk Al-Ijarah, under its RM4 billion nominal value sukuk programme arranged in 2009. Proceeds will be used to partly finance the Kelana Jaya and Ampang LRT Line Extension Project and other infrastructure improvement initiatives by Prasarana. This is the first sukuk issuance by the company that tapped the Islamic capital market.

The company is responsible for facilitating, undertaking and expediting public infrastructure projects approved by the government and, together with its group of companies, is also an asset owner and operator of several public transport systems such as Ampang and Kelana Jaya lines, KL Monorail system, bus operations in Klang Valley and Penang, as well as the cable car services in Langkawi.

DANAINFRA. DanaInfra Nasional Bhd's total issue of current exchange-traded bonds and sukuk (ETBS) for the first phase of the MRT Kajang-Sungai Buloh line is worth RM1.5 billion, of which RM300 million is allotted for retail investors. The balance of RM1.2 billion will be for institutional investors.

DanaInfra first issued its 10-year RM300 million retail sukuk on 8 February 2013. Its proceeds are intended to partially fund the Klang Valley's mass rapid transit (MRT). Its minimum required investment of RM1,000 made it possible for small investors to take part, particularly as this is for a national infrastructure project. This first retail sukuk, which was guaranteed by the Malaysian government, would most likely encourage others to issue retail private debt securities such as conventional bonds and Malaysian Government Securities (MGS) to the public as well.

The government had also announced that incentives will be given to companies that issue bonds and sukuk. These incentives include double tax deductions for a period of four years for additional expenses incurred in such issuances.

AXIATA Celcom Transmission (M) Sdn Bhd. Axiata Bhd issued RM5 billion nominal value Murabahah Sukuk on 15 June 2012. All proceeds from the sukuk programme were intended for the refinancing of the issuer's existing debt, payment of fees and expenses (if any) related to the refinancing of the debt, payment of fees and expenses related to the sukuk programme, funding of capital expenditures and working capital, and other corporate and funding purposes provided that such utilisation will be shariah compliant.

Why Islamic Project Financing?

In recent years, many sukuk fundraising were meant to finance an infrastructure development. The PPP model—where the government has

allowed the private sector to participate either through the involvement of government-linked companies (GLCs) or through creation of SPVs—is clearly visible here. In this model, even though the interest in infrastructure development is of the public, the way the fund is raised is very much with the private sector's involvement.

In Malaysia, total sukuk issuances have now surpassed that of bonds, indicating that it is more attractive to raise funds through sukuk rather than conventional ways. Islamic instruments, specifically sukuk or Islamic bonds, are increasingly becoming the preferred financing option in view of the benefits derived from sukuk financing.

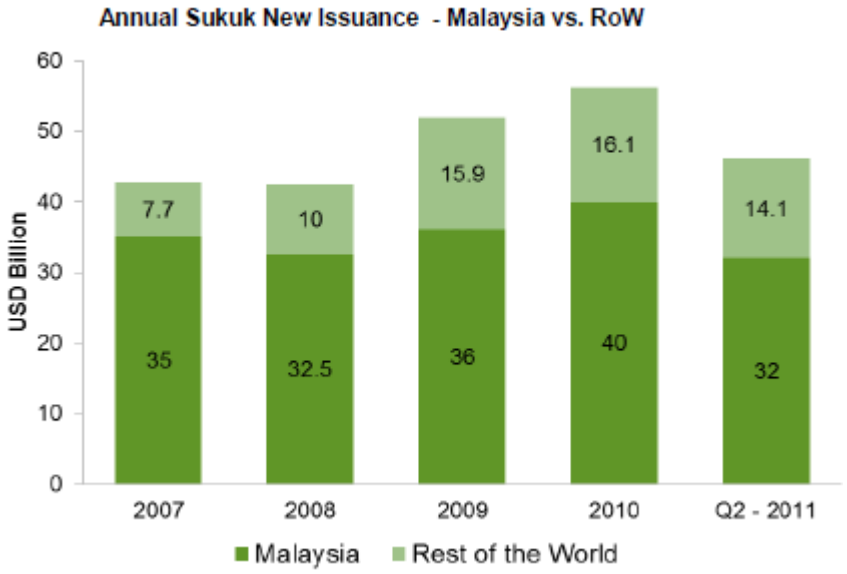
Below are some factors that explain why sukuk is attractive as an option in infrastructure financing:

1) Lower cost of funds
   - No stamp duty imposed
   - Better yield given the greater demand from a wider investor base and lower cost of funds
   - Ability of the Malaysian capital market to attached large liquidity
2) Tax incentives (for both issuers and investors)
   - Tax deduction for issuers
   - Tax neutrality for SPVs
3) Flexibility
   - An array of shariah contracts to cater to varying investors' risk appetites
4) Diverse investor base
   - Larger investor base, both local and global players
5) Greater transparency
   - Obligation of full disclosure to investors
   - Prohibition of excessive leveraging
6) Enhanced security for investors
   - Collateralised or backed by assets
7) Supportive regulatory and legal framework
   - Strong regulations by Bank Negara Malaysia (Bank NM) and Securities Commission Malaysia (SC)
   - Robust legal framework that support Islamic Capital Market
   - Framework that provide issuers and investors' protection

Malaysia as a Leading Global Sukuk Market

- Malaysia's Islamic Financial System boasts of assets valued at RM1.416 trillion (EUR 351.68 billion). Malaysia is the global leader in the sukuk market as it accounts for 62.7 percent share of the outstanding sukuk globally in 2011. It is number one on terms of industry asset size and activity, and it continues to be a market leader until now. The successful of sukuk issuance is influenced by increasing infrastructure spending and strong infrastructure pipeline supply.

Figure 5.10: Annual Sukuk New Issues – Malaysia vs. Rest of the World



Source: KFH Research Ltd. and Kuwait Finance House (2013)

Conclusions

Enhancing ASEAN Connectivity through New Modes of Financing: Exploring Islamic Finance

Malaysia can be considered as leading the ASEAN in the use of the PPP model in infrastructure financing. It started back in the 1980s, when agencies that were responsible for many of the infrastructure development were

privatised. This enabled the development of major infrastructure projects, including major highways across the country, airports such as the KLIA, and communications facilities.

In recent years, another option on project financing has emerged: The Islamic project financing, particularly the use of sukuk, for Malaysia's infrastructure activities. As a world leader on Islamic finance, Malaysia is poised to leverage on current conditions and further to enhance the use of sukuk for its infrastructure development. As the sukuk market is already established in Malaysia—i.e., around 63 percent of the global outstanding sukuk were issued in Malaysia—the cost of funds raised through Islamic financing is cheaper than the conventional way. Thus, at least in Malaysia, it makes more business sense to raise funds through sukuk issues than through bonds.

How does the ASEAN benefit from Malaysia's role as world leader in Islamic finance? How can issues of ASEAN connectivity be resolved through Islamic financing? Certainly, some Malaysian success stories in project financing can be replicated in other ASEAN member states. Other ASEAN countries can issue their own sovereign sukuk so as to raise funds for infrastructure financing.

How viable is this options when markets are not familiar with Islamic finance and sukuk? This question needs to be analysed from the issuers and investors' perspective.

On the issuers' perspective, countries need to be ready in terms of the legal environment before they issue sukuk. This includes taxation laws. To be able to make Islamic financing attractive or at least not penalising, countries need to have tax neutrality. A few countries have undergone tax reforms to allow for tax neutrality before issuing sukuk and be more involved in Islamic finance. Countries such as Singapore, Thailand, and Indonesia are rather well ahead in terms of the infrastructure to support the Islamic finance industry and have either issued sukuk and other Islamic instruments or are well on their way to devising and reforming laws to make it possible to issue sukuk.

For the Cambodia-Lao PDR-Myanmar-Viet Nam (CLMV) countries, without the proper legal infrastructure, issuing sukuk would be rather costly. However, a viable option is for sukuk to be issued from Malaysia as a fundraising activity for projects in CLMV through a special purpose vehicle so as to

leverage on Malaysia's leading position in Islamic finance and take advantage of the associated benefits.

Would sukuk raised in CLMV be attractive to global investors? According to an interview with Noripah Kamso, a leading Islamic finance practitioner (2 August 2013 at CIMB, Kuala Lumpur), the Asian region represents a far more attractive venue to invest compared to some of the developed regions such as Europe. In principle, it is possible to raise bonds or even sukuk in these CLMV countries. However, the credit ratings of these countries could be an issue. Without significant historical experience in bond or sukuk issuance, these countries will not be highly rated enough to be attractive to investors.

Meanwhile, a bond issue would not be any better than a sukuk issue in terms of investor attraction and credit rating. However, assuming there are already elements of trust and credibility pervading among parties involved, it may be worthwhile to find a way to structure the sukuk so as to attract Islamic investors across the globe who are always on the lookout for new shariah-compliant products. Currently in the Islamic finance space, demand outstrips supply. Such global demand, coupled with Malaysia's position as leader in Islamic Finance, is reason enough for other ASEAN countries to also consider Islamic financing as another way to fund infrastructure activities.

Developments and trends in the global and ASEAN markets suggest some factors that can support the growth of Islamic project financing. These include:

- ASEAN as part of a fast-growing Asian economy;
- Ability to attract liquidity from Asian and Gulf Cooperation Council (GCC) Islamic and non-Islamic investors;
- Growing global interest on sukuk as a financing instrument and on wealth management tools for corporate and retail investors;
- Malaysia is the world’s leading Islamic finance hub with the most comprehensive market infrastructure;
- Nearby Singapore is an upcoming Islamic finance “hot spot”;

- Large Muslim population and a supportive market coming from Indonesia;

Challenges: Islamic Financing as a PPP Mode for Infrastructure Financing in ASEAN Countries

- Markets' unfamiliarity with Islamic finance, especially in non-Muslim countries (Note: In the case of sukuk, investors are usually corporations and institutions, and global sukuk can be structured to attract sophisticated global investors familiar with the instrument);
- Laws of the land that are not friendly to sukuk and Islamic contracts. This will take time before the country becomes legally ready to issue sukuk. (This can be resolved though by using other countries such as Malaysia or Singapore as country of domicile or issuing country.);
- If a country has no record in bond or sukuk issuance or does not possess good country ratings, sukuk issued may be given poor credit ratings, thus reducing its credibility as well as the takeup rate by investors;
- Persistent and wrong perception that Islamic finance and sukuk are only for Muslims and that a predominantly Muslim country will tend to prevent a Muslim-minority country from looking at Islamic financing as a viable option.

Recommendations

The ASEAN member countries can look at Malaysia and learn from its success stories on the PPP model as well as the more recent modes of Islamic financing, particularly the use of sukuk as a tool to fund infrastructure projects. Financing agencies such as the ADB may also replicate the success of the Islamic Development Bank on sukuk issuance for many of its infrastructure projects.

Countries in the ASEAN may further consider leveraging on the comprehensive and complete Islamic finance market in Malaysia, where an established legal and regulatory framework as well as the human capital and

other infrastructure had been developed over the past 30 years. Sovereign sukuk of neighbouring ASEAN countries can be issued using Malaysia as a platform, thus enhancing ASEAN connectivity. Islamic financing instruments—sukuk, in particular—should not be viewed as a financing tool for Muslim countries or Muslim investors only. It is worthwhile for other ASEAN countries to explore sukuk's usefulness for their own infrastructure projects.

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Annex A: Area, Population, and Age Structure

Table 5.A1: Area

Area	Sq. Km.
Peninsular Malaysia	132,631
Sabah & Labuan	73,722
Sarawak	124,450
TOTAL	330,803

Table 5.A2: Population

Number (Mid-year)[1/]	Unit	2008	2009	2010	2011	2012
	mil	27.5	27.9	28.3	28.6	28.9
Growth	% p.a.	1.3	1.3	1.3	1.1	1.1
Density	per sq.km	84.4	85.0	85.0	86.3	87.2

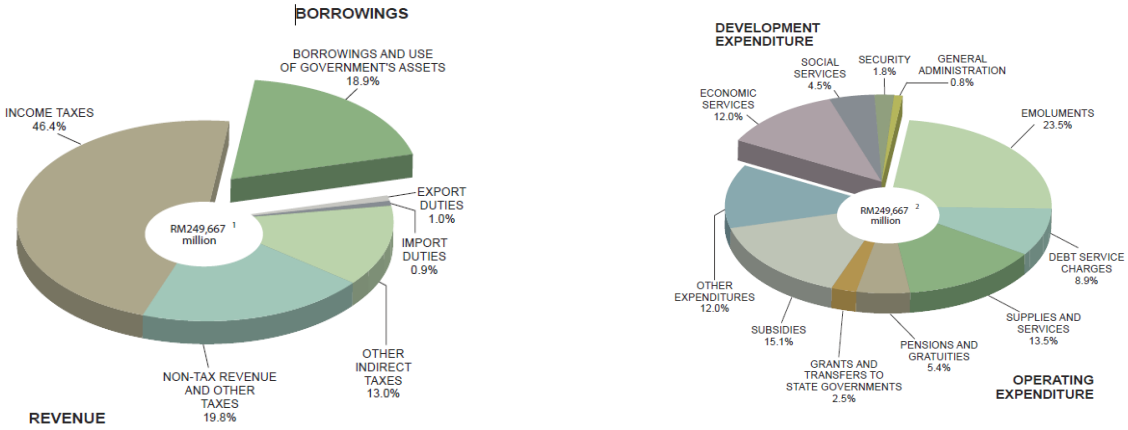
Table 5.A3: Population Age Structure

Age group	2008		2009		2010		2011		2012	
	mil	% of Total	mil	% of Total	mil	% of Total	mil	% of Total	mil	% of Total
0 - 14	7.8	28.2	7.7	27.7	7.7	27.2	7.7	27.1	7.6	27
15 - 64	18.5	67.3	18.9	67.7	19.2	68.1	19.5	69.1	19.8	70.1
65 & above	1.2	4.5	1.3	4.6	1.3	4.7	1.4	4.9	1.4	5.1

Source: Department of Statistics, Malaysia.

Annex B: National Budget 2013

Figure 5.B1: Government Revenue and Expenditure 2013 (Budgeted)



Note: [1]Include revenue, borrowings, and use of government assets, [2] Excludes contingency reserves
Source: Ministry of Finance.

Annex C: PPP in Malaysia

Figure 5.C1: PPP Structure

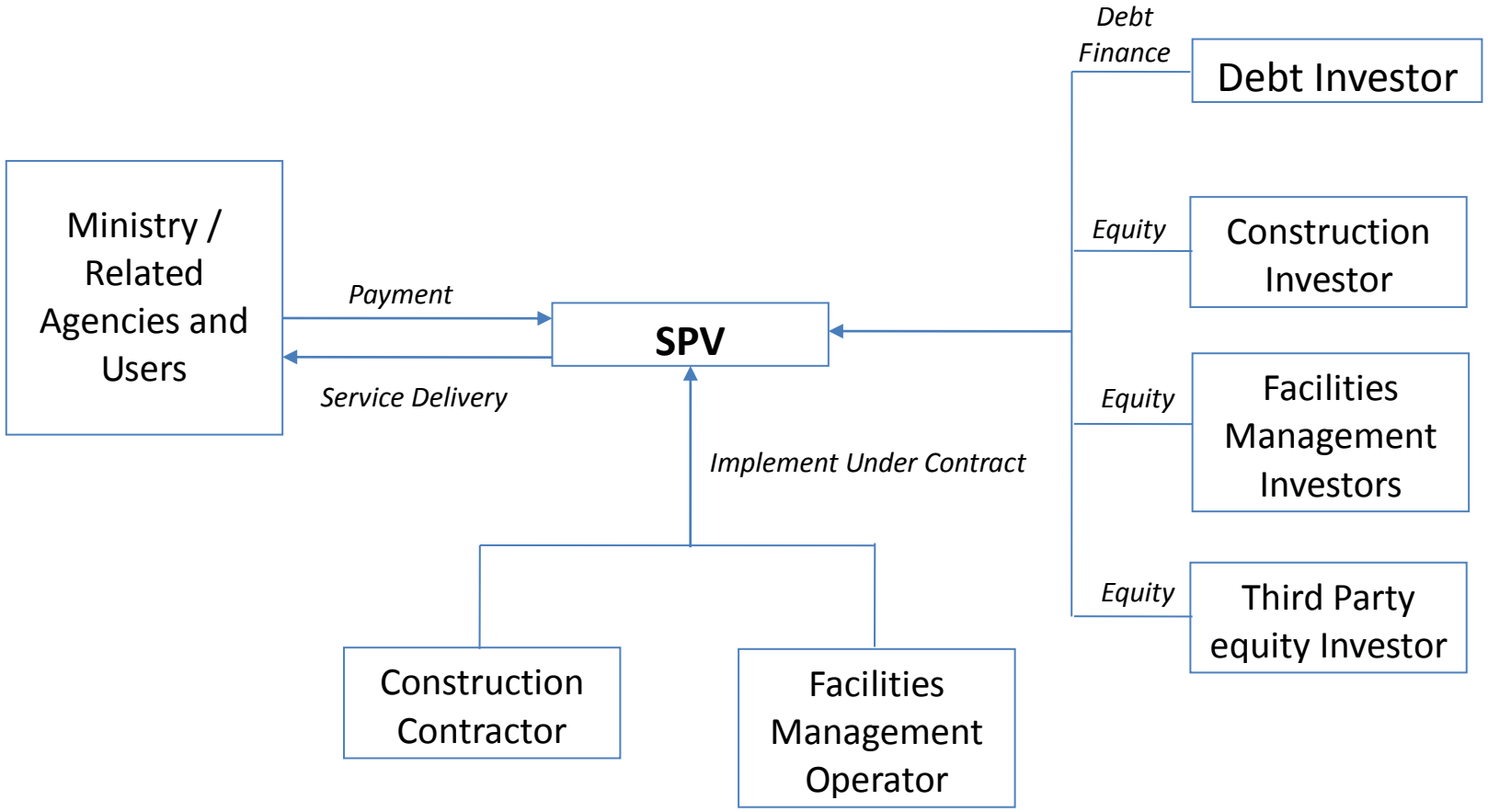


Table 5.C.1: Comparison: Privatisation, PPP, and Conventional Methods of Procurement of Public Services

Privatisation	PPP	Conventional
• Funding via private financial resources without implicit or explicit public sector guarantee. • No impact on the level of public sector expenditure. • Risks are entirely borne by the private sector. • Government acts as regulator. • Long duration of relationship with private contractors. • Applicable for projects with high commercial viability.	• Funding via private financial resources without public sector's explicit guarantee. • Impact on public budget spreads over the duration of the concession. • Risks are allocated to parties that can manage them most efficiently • Public sector's involvement is through enforcement of pre-agreed KPIs. • Long duration of relationship with private contractors. • Applicable for projects with commercial viability.	• Procurements are funded directly via public budget. • Immediate impact on public sector financial position. • Risks are entirely borne by public sector. • Extensive public sector involvement at all stages of project life. • Relationship with private contractor is short term. • Applicable for projects with high socio-economic returns and those justified on strategic considerations.

Source: UKAS, 2009, p. 7 (www.ukas.gov.my).

Table 5.C.2: Sample PPP Projects in Malaysia

Here are more detailed descriptions on three of Malaysia's PPP projects that have been implemented successfully.

PPP Project	Project description
North South Expressway	The North South Expressway (NSE) is Malaysia's ultra-modern highway that spans across Peninsular Malaysia, from the border with Thailand in the north to the border with Singapore in the south. The 973-km highway was completed in 1988. The NSE is operated by the concessionaire, Projek Lebuhraya Utara Selatan Malaysia Bhd or PLUS. It is implemented via the Build-Operate-Transfer (BOT) mode of PPP. The concession period is for 48 years.
SMART Tunnel	The Stormwater Management and Road Tunnel (SMART Tunnel) project is a special project that combines a system of traffic dispersal (to reduce congestion in downtown Kuala Lumpur) and a flood-mitigation initiative (to reduce the occurrences of flash flood in Kuala Lumpur). The project was awarded to a joint venture between MMC Corporation and Gamuda Bhd and was completed in 2007. The tunnel component of the project, built at a cost of RM1.9 billion, will be recovered by the concessionaire via collection of toll fees for a period of 40 years.
Putrajaya	Putrajaya has been Malaysia's new administrative capital since 1999. It is situated 25 km south of Kuala Lumpur. The project is undertaken by Putrajaya Holdings, a company with PETRONAS (the National Petroleum Corporation of Malaysia), Khazanah Nasional Bhd (a Malaysian government investment arm), and Kumpulan Wang Amanah Negara as shareholders. The project was implemented via the Build-Lease-Transfer (BLT) mode of PPP. The development, covering an area of 4,930 ha, includes modern buildings for government offices, residential, and commercial facilities that would cater to a population of 500,000.

Figure 5.C.2: Sector Distribution of PPP Projects 1983-2012 (% of total)

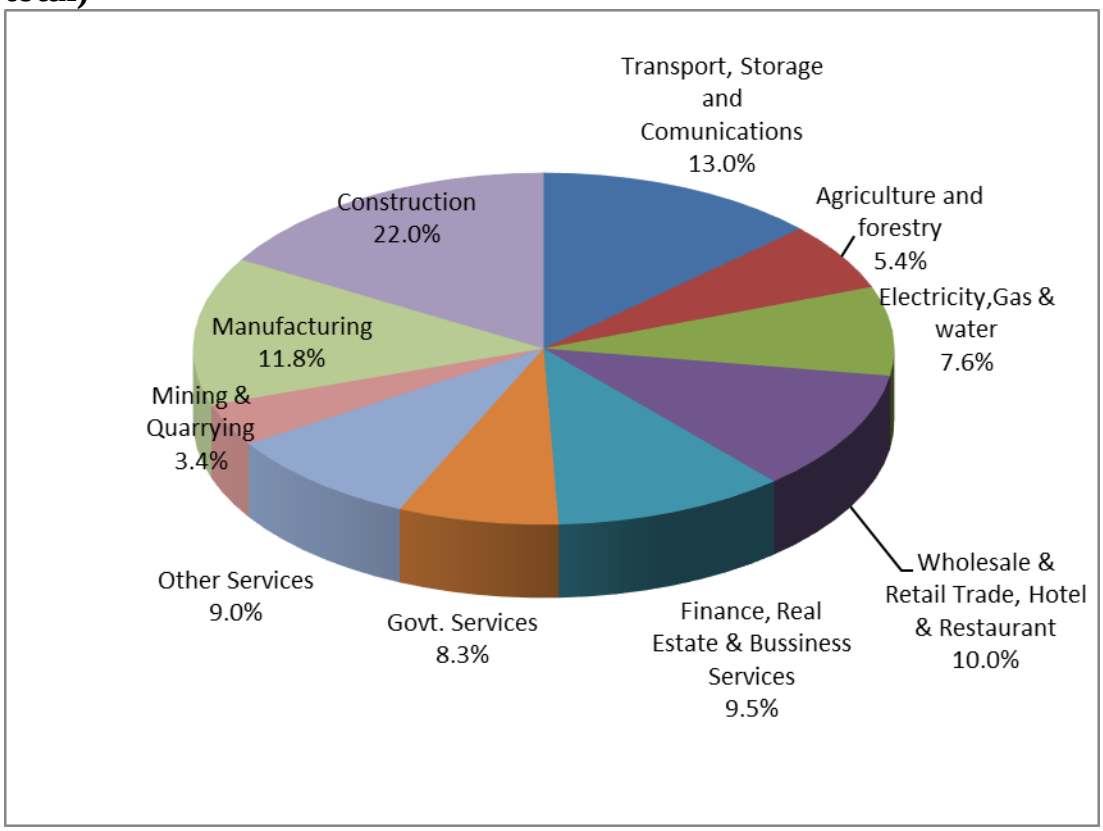


Table 5.C.3: Major Roads Projects, 1995-2005

MAJOR ROAD PROJECTS IMPLEMENTED

1995-2005

Project	*Length (km)*	*Completion (Year)*
COMPLETED PROJECTS		
i. Government-Funded Projects		
Access Road to Kulim Hi-Tech Industrial Park	9	1996
Kota Tinggi Bypass	10	1997
Eastern Access to KLIA	17	1998
Berungis-Kota Belud Highway	38	1998
Middle Ring Road II (Phase I)	35	1998
Access Road to Belaga, Sarawak	126	1999
Kuala Perlis-Changloon Highway	36	2000
Access Road to Port of Tanjung Pelepas, Johore	8	2000
Sungai Dinding Bridge	10	2000
Upgrading of B15	10	2000
South Klang Valley Expressway Section 1A	11	2000
Access Road to Toxic Water Plant in Bukit Nenas, Negeri Sembilan	17	2000
ii. Privatised Projects		
Butterworth-Kulim Highway	17	1996
Seremban-Port Dickson Highway	22	1997
North-South Expressway Central Link	48	1997
Shah Alam Expressway	35	1998
Second Link to Singapore	45	1998
Kuala Lumpur-Karak Highway	60	1998

MAJOR ROAD PROJECTS IMPLEMENTED

1995-2005

Project	*Length (km)*	*Completion (Year)*
Cheras-Kajang Highway	12	1998
Damansara-Puchong Highway	40	1998
Upgrading Sungai Besi Road	16	1999
UNDER CONSTRUCTION		
i. Government-Funded Projects		
Upgrading Beaufort-Sindumin Road	65	2001
Beaufort-Mempakul Road	64	2001
Lipat Kajang (Melaka) Interchange to North-South Expressway	2	2001
Sungai Rejang Bridge	7	2001
Brinchang-Lojing Road	22	2001
East-Coast Highway	169	2003
ii. Privatised Projects		
New North Klang Straits Bypass	18	2001
Western Kuala Lumpur Traffic Dispersal Scheme	26	2001
New Pantai Highway	20	2003
Kajang-Seremban Highway	48	2004
Butterworth Outer Ring Road	19	2004
Ipoh-Lumut Highway	70	2004
Kajang Traffic Dispersal Highway	37	2004

Source: Ninth Malaysia Plan, 2006.

Table 5.C.4: Recent and Upcoming PPP Projects in Malaysia, 2011-2015

Road Sector	• Seven highway projects amounting to an estimated RM19 billion, including: – West Coast Expressway – Guthrie-Damansara Expressway – Sungai Juru Expressway – Paroi-Senawang-KLIA Expressway – Ampang-Cheras-Pandan Elevated Highway
Rail and Transport	• Integrated Transport Terminal in Gombak, Selangor • Mass Rapid Transit (MRT) project in Greater Kuala Lumpur (RM40 billion) • Kuala Lumpur – Singapore High-Speed Rail covering 400 km (RM18.6 billion – currently in feasibility stage) • East Coast Rail route (RM29 billion – currently in feasibility stage)
Power	• Two-coal electricity generation plants (RM7 billion) • 300-megawatt Combined-Cycle Gas Power Plant in Kimanis, Sabah (RM1.5 billion) • Construction of the liquefied natural gas regassification by Petronas in Melaka (RM3 billion)

Education	• Perdana University, a joint venture between Academic Medical Centre Sdn Bhd and John Hopkins • Medicine International as well as Royal College of Surgeons Ireland (RM2 billion) • Five Universiti Teknologi MARA (UITM) branch campuses • International Islamic University Malaysia Teaching Hospital in Kuantan (RM413 million)
Port	• Privatisation of Penang Port Sdn Bhd
Others	• Development of Malaysian Rubber Board's 3,300 acre land in Sungai Buloh, Selangor (RM10 billion) • Redevelopment of the Angkasapuri Complex Kuala Lumpur as Media City • Kuala Lumpur Strategic Development by 1MDB; Sungai Besi Airport area • International Financial District in Kuala Lumpur (RM26 billion) • Two aluminium smelters in Sarawak Corridor of Renewable Energy (SCORE)

Sources: Chan (2012).

CHAPTER 6

Myanmar Country Report

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Introduction

Myanmar, formerly known as Burma, is now in the spotlight both politically and economically. Of late, it has been the go-to site of a growing number of individual and study missions for business, political and humanitarian reasons.

During the 22nd World Economic Forum held in Myanmar on 5-7 June 2013, discussions around Myanmar's booming economy also touched on its lack of infrastructure, particularly in the electricity, telecommunications, and energy sectors. For the country, it is all about its courageous transformation for inclusion and integration.

The Economy

Myanmar's fifth Five-Year Plan for the period 2015-2016 shows targets of 6-percent gross domestic product (GDP) growth for 2011-2012, 6.7 percent for 2012-2013, 8.3 percent for 2013-2014, 8.2 percent for 2014-2015, and 9.6 percent for 2015-2016. The average annual GDP growth rate target for the fifth Five-Year Plan is 7.7 percent.

Over the years, Myanmar’s gross domestic investment (GDI) ratio averaged around 12 percent per year. However, in the fifth Five-Year Plan, the investment ratio is at 30 percent and savings ratio at 20 percent while the tax

revenue is only 3 percent of GDP.

A change in the relative shares of agriculture, industry, and services in GDP over time is generally accepted as a measure of structural change in an economy undergoing both industrialisation and modernisation. Figures of previous years show that the share of agriculture in GDP did not fall significantly.

Today, however, industry's share in GDP is estimated to increase from 26 percent in 2010-2011 to 36.4 percent in 2015-2016 while that of agricultural will decrease from 36.4 percent in 2010-2011 to 28 percent in 2015-2016. The services' share will drop from 37.6 percent in 2010-2011 to 35.2 percent in 2015-2016. This shows that Myanmar is going for a drastic structural change under the new economic system associated with the overtly proclaimed democratic political system.

Maintaining macroeconomic stability—e.g., low price inflation and stable exchange rate—has been a major challenge for the government. Weaknesses in fiscal policy management associated with poor monetary policy management are the main contributors to Myanmar's macroeconomic instability. Fiscal deficits have been in the range of 2 percent to 6 percent of GDP since 2005. The estimated deficit for the fiscal year ended March 2012 is 4.5 percent of GDP, down from a deficit of 6 percent for the year ended March 2011. The government finances its deficit by selling treasury bills to the Central Bank of Myanmar (CBM), which then monetises the deficit (or prints money) to pay for the deficit. In the past, monetising the fiscal deficit has led to a persistently high expansion in money supply and macroeconomic instability, as reflected in the parallel market exchange rate volatility and periods of very high inflation.

The weak fiscal situation is primarily due to poor tax revenue performance. Total national budget revenues were recorded as approximately 7 percent of GDP in 2011, of which tax revenue collection only accounts for half of the budget revenues. Transfers from state enterprises and other non-tax revenues account for the other half of total revenue. Apparently, more tax revenues are required to support the government's priority development spending initiatives over the medium term.

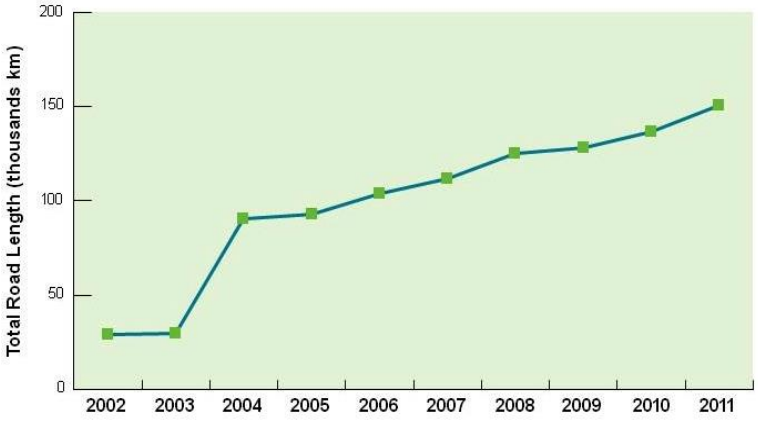
Infrastructure Development Situation

Myanmar lags behind many of its regional neighbours in both the availability and quality of key infrastructure and related services. Sectors such as transport, electricity access, and telecommunication merit particular attention. The national transport networks, including roads, railways, and inland waterways, are out-dated and remain insufficient to support the growing economic activity. Only about 26 percent of Myanmar's population had access to electricity in 2011 and even then faced frequent power outages. Similarly, teledensity (both fixed and mobile) and internet access are among the lowest in the region.

Roads

The country has a total road network of about 130,000 km, and roads are the dominant transport subsector (Figure 6.1). The road density is low at 40 km per 1,000 sq. km, when compared with 480 in Viet Nam, 350 in Thailand, 200 in Cambodia, and 60 in the Lao PDR (ADB, 2011). In addition, only 20 percent of the roads are paved to all-weather standards. The core road network of 38,000 km provides access to most of the country's regions and about 46 percent of the core roads have a paved all-weather surface. By comparison, only 13 percent of the noncore secondary and local roads have some form of all-weather surfacing. The rest are in a rather poor condition in other respects (Annex 1's Table 6.A.1 for more on Myanmar's road transport).

Figure 6.1: Growth of Roads in Myanmar



Source: ADB, 2011b.

a. Local Roads

- The Yangon-Pyay route is considered the best highway in Myanmar. It was funded by the Japanese government.
- The Pyay-Magway Road is a continuation of the road mentioned above. It runs on the east bank of the Irrawaddy River and continues to Bagan via Yenanchaung, the major oil drilling town in central Myanmar.
- The road from Mandalay to Lashio and Muse is another decent highway.
- There is a 695-km highway connecting Yangon and Mandalay. The road passes through Bago, Taungoo, Pyinmana, Naypyidaw, and Meikhtila and is the main commercial link. This is a two-lane highway for the most part, but turns into four-lanes near Yangon and Mandalay. Currently, six-lane sections are being constructed.
- The Western Union Highway connects towns and cities west of the Irrawaddy River. It is considered the worst highway in the country. In some places, it is simply a dirt road.

b. ***International Roads.*** To support Myanmar's regional cooperation with neighbouring countries, the government is now creating international highways (Figures 6.2 and 6.3 and Figure 6.A.1).

- *ASEAN Highways*
  1. AH 1- Myawaddy-Tamu (1,665 km)
  2. AH 2- Tachilake-Kyaington-Taunggyi-Meikhtilla- Tamu
  3. AH 3- Kyaington-Mylar (93 km)

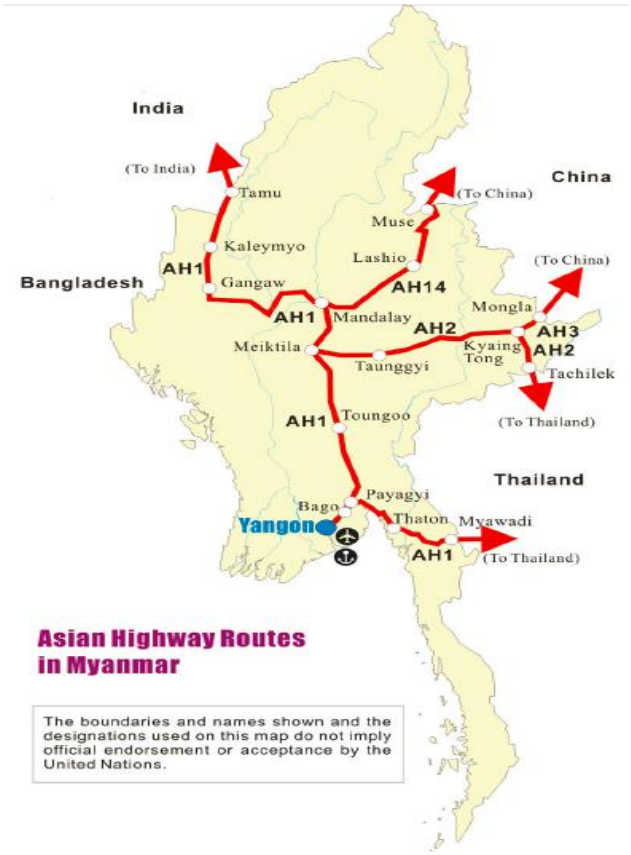
4. Ah 14- Mandalay-Muse (453 km)
5. AH 111- Loinlin-Thibaw (239 km)
6. AH 112- Thahtone-Kyaukthoung (239 km)
7. AH 123- Dewai-Minthame Valley in Thai-Myanmar Border (141 km)
8. AH 123- Laynyar Ywe-Khalonloin in Thai (60 km)

- *Asian Highways*
  1. AH 1-Myawaddy-Tamu (1,665 km)
  2. AH 2-Tachilake-Kyaington-Taunggyi-Meikhtila (807 km) and then link with AH 1
  3. AH 3-Kyaington-Mylar (93 km)
  4. AH 4-Mandalay-Muse (453 km)
- *GMS Highways*
  1. R3-Tachilake-Kyaington-Mylar (257 km)
  2. R4-Lasho-Muse (176 km)
  3. R5-Kyaington-Loinlin-Thibaw-Lasho (666 km)

Figure 6.2: International Highway Linkages from Myanmar

Source: (UN, 2012).

Figure 6.3: Asian Highway Routes in Myanmar



Source: UN, 2012.

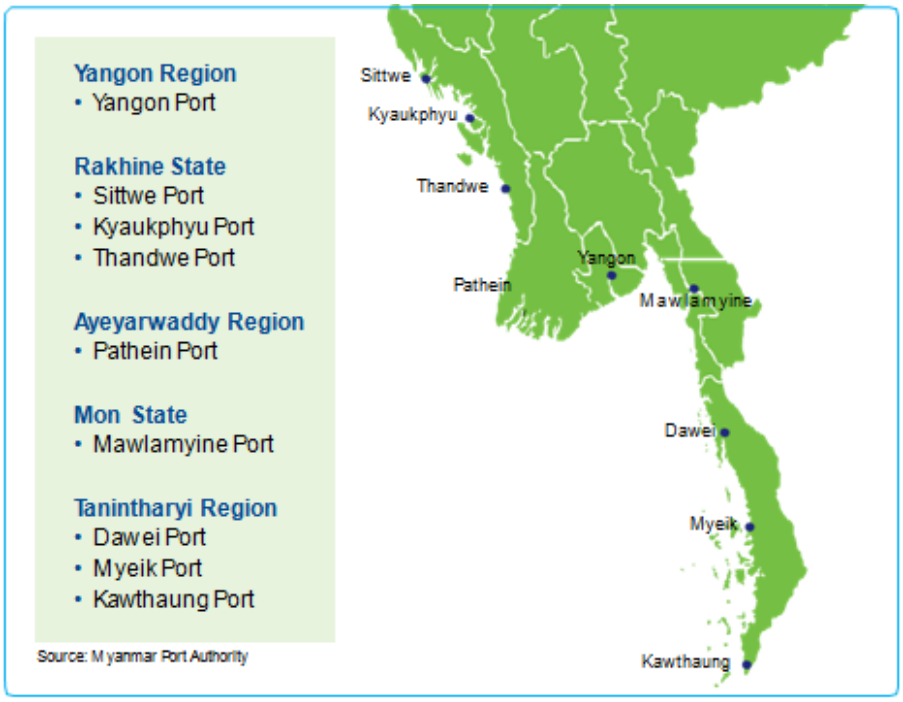
Ports

Myanmar's favourable geographic location makes it an attractive location to develop port facilities. The country's 2,800 km coastline runs along the eastern side of the Bay of Bengal and has the potential to become an alternative international trade route to Asia, bypassing the longer route through the Straits of Malacca. The development of its ports can turn Myanmar into a potential regional trade and transport hub. The Bay of Bengal is already home to some of the biggest ports in the world—i.e., Chittagong in Bangladesh and Chennai in India—a good indicator of the location's strong potential.

Myanmar currently has nine ports along the western and south eastern coast of the country, namely: Yangon, Sittwe, Kyaukphyu, Thandwe, Pathein, Mawlamyine, Dawei, Myeik, and Kawthaung (Figure 6.4). In addition, Myanmar International Terminals Thilawa (MITT) is a private multi-purpose

container terminal owned and operated by Hutchinson Port Holdings. Myanmar's ports handled 24 million tons of import and export freight in 2011, with the Port of Yangon taking care of 90 percent of the cargo throughput (See Annex 2's Tables 6.A.2 to 6.A.6 for more details.).

Figure 6.4: Seaports in Myanmar



[9] "Myanmar: Transport Sector Initial Assessment", ADB, Oct 2012.

Opportunities for the Private Sector. A long coastline and growth in volume of imports and exports as a result of increased demand for the country's agricultural commodities, minerals, and natural resources are reasons enough to develop the port infrastructure in Myanmar. Myanmar's ports have the potential to become regional transportation hubs serving markets in China, India, and the Indo-China region.

Deep water ports are currently being jointly developed at the southern city of Dawei (in association with Thailand) and Kyaukphyu in the north. There, too, are interests in developing ports in Thilawa and Sittwe. The government has likewise identified sites in Kalegauk and Bokpyin for the development of ports (See Annex 3's Table 6.A.7 for details on Myanmar's water transport).

Railways

The railway network expanded from about 2,000 km in 1988 to about 3,500 km in 2010. Most of the expansion has been in the more remote regions, in support of the government's policy of connecting all parts of the country through transport infrastructure. Most new lines carry little traffic and were very expensive to construct, as they are typically in mountainous terrain, leaving limited funds to maintain and improve the core network. Thus, the network's infrastructure is now in very poor condition.

Japan has completed a feasibility study on the proposed US$1.7 billion modernisation of the Yangon-Mandalay railway link. The rehabilitation contract for the 640-km link will be given to Japanese companies because the study was funded by a grant from Japan. Japan is also expected to provide a loan to the project.

In another development, the Myanmar government plans to set up manufacturing facilities for diesel locomotives and rolling stock such as coaches and wagons in the country by 2015. These facilities will require an investment of US$100 million. While 90 percent of the investment will be covered through the Chinese loan, 10 percent will be sourced from Myanmar's annual budget. The diesel engines will be manufactured in Nay Pyi Taw, the Myanmar capital while the coaches and wagons will be built in Mandalay.

Myanmar has a railway network length of 4,000 km of tracks, with 926 stations and a fleet of 436 locomotives. The state-run railway system has 412 trains that lug 1,281 passenger coaches and 3,204 wagons. Much of the railway network is old and in urgent need of modernisation. A planned Trans-Asian Railway link aims to connect the railway systems of 28 countries in Asia, and Europe. There is also a plan to establish a rail link between India and Myanmar, which will join Jiribam, Assam, in India with Kalay in Myanmar. Such connectivity will also help in the economic integration of the Association of Southeast Asian Nations (ASEAN).

Trade between India and ASEAN was US$76.3 billion in 2012-2013 and is expected to increase to US$100 billion by 2015. Thus, India has been involved in strengthening Myanmar's railway infrastructure. Of a US$500 million credit line extended to the Myanmar government by India, US$155 million has been earmarked for developing the railway infrastructure.

Opportunities for Private Sector. Under the Framework for Economic and Social Reform, the government has committed to improve the quality of the railroad sections that connect important economic centres in the country; namely, the Yangon-Mandalay-Myitkyina section and the Bago-Mawlamyine section. Hence, greater attention will be given to regional connectivity and to bridging the gaps in operations and compatibility in alignment with region-wide transport strategies.

There are likewise existing plans under the Singapore-Kunming Rail Link (SKRL) project to build a high-speed railway that will connect Kunming in Southwest China, with mainland Southeast Asia. Three routes—each respectively going through Vietnam, Lao PDR, and Myanmar—have been planned for the rail link. The project is a priority agenda under the ASEAN transport cooperation. Once completed, the SKRL project will become part of the 14,080 km Trans-Asian Railway network across Europe and Asia (See Annex 4's Table 6.A.8 for details on Myanmar's railway transport).

Inland Waterways

Myanmar has about 5,000 km of navigable waterways, of which about 2,400 km make up the primary inland waterway network. The state enterprise Myanmar Inland Water Transport (MIWT) has about 240 powered vessels available, with a total capacity of about 70,000 tons, although many of these vessels are old. In 2011, the MIWT carried about 28 million passengers and 5 million tons of freight.

The Myanmar Port Authority is responsible for the port in Yangon and eight coastal ports—four on the west coast, and four on the southeast coast. Most coastal traffic is between coastal ports and Yangon.

The port subsector currently has no major constraints, but it would make sense for Myanmar to start preparing for heightened traffic flows that may result from economic liberalisation and growth. Improving the coastal ports would allow for more effective use of coastal shipping as part of the country’s overall transport mix.

Air Transportation

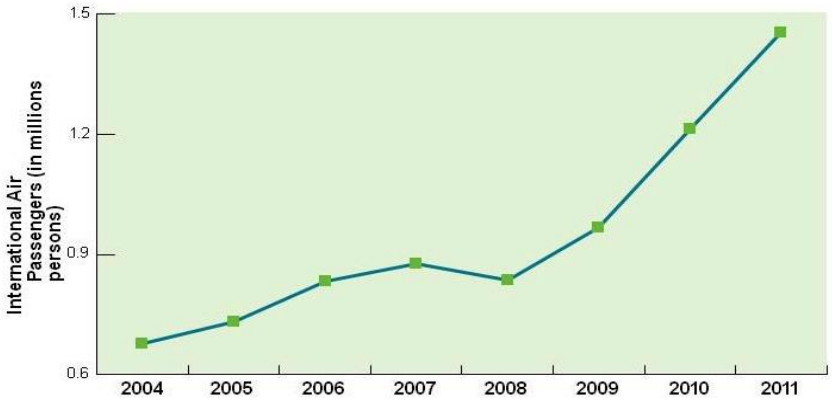
Myanmar’s civil aviation subsector consists of three international airports at

Yangon and Mandalay, and Nay Pyi Taw (which was opened in 2011) and 69 local airports. Domestic air services are provided by Myanma Airways, a state enterprise under the Ministry of Transport. Private airlines that offer domestic services include Air Mandalay (a joint venture of Myanma Airways and Singaporean interests) and Air Bagan. Myanmar Airways International, a subsidiary of Myanma Airways, provides some international services to regional destinations, using more modern aircraft such as the Airbus A320 and A321.

Myanmar currently has a total of 69 airports, of which only 32 are operational. There are three international airports—in Yangon, Mandalay, and Nay Pyi Taw—where 19 international airlines and four domestic airlines operate regular flights between Myanmar and 17 regional destinations. In 2011, there were 1.5 million international passengers and 1.4 million domestic passengers (Figure 6.5).

The Myanmar Department of Civil Aviation (DCA) hopes to double the capacity at Yangon International Airport from 2.7 million passengers a year to 5.5 million annually. The government also aims to transform some of the existing domestic airports into international airports to serve the growing number of foreign investors and tourists. The DCA has in fact announced plans to re-develop airports in Yangon and Mandalay.

Figure 6.5: Annual International Air Passenger Traffic into Myanmar



Source: CAPA – Centre for Aviation & Myanmar Department of Civil Aviation.

Opportunities for the Private Sector. In February 2012, the government announced plans to add two new international airports to meet future air traffic demand in the country. These airports are the Hanthawaddy International Airport in central Bago region and Dawei International Airport in the Dawei special economic zone.

Authorities are in the process of identifying a partner for the development of the Hanthawaddy airport under a public-private partnership (PPP) scheme. As of this writing, seven consortia have pre-qualified for the project, with the Request for Proposals set to be sent to pre-qualified bidders shortly. The government has also declared its plans to re-develop the Yangon and Mandalay Airports as PPP projects. Eleven consortia and seven groups have respectively pre-qualified for the Yangon and Mandalay projects.

To manage the risks in PPP projects, a number of preparatory activities are being undertaken. The objectives for a National Air Transport Policy have been laid down. In the offing is the plan to develop a Civil Aviation Master Plan with assistance from the Japan International Cooperation Agency (JICA). Meanwhile, the DCA plans to reform its institutional set-up, where it now differentiates its role as regulator versus that of a service-provider. Specifically, it has invited the private sector to participate as the service-provider. Note though that under the nation's new Foreign Investment Law, foreign investment is prohibited in air navigation services. Foreigners can only invest in the domestic and international air transport services if they are part of a joint venture with Myanmar nationals (See Annex 5's Table 9A for more details on Myanmar 's air transport).

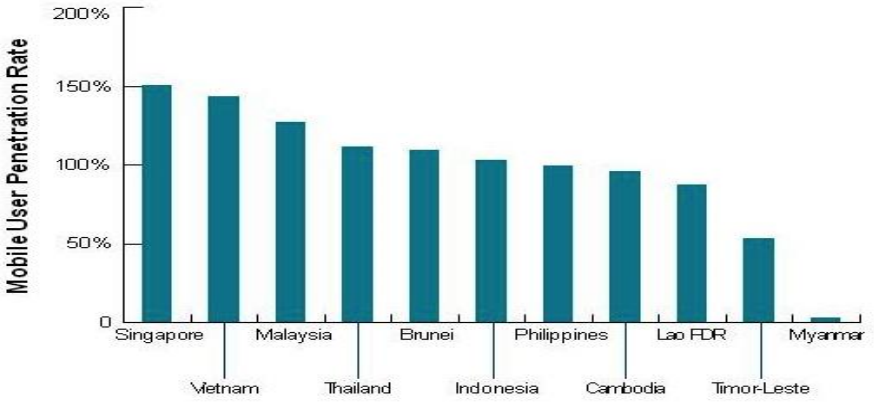
Information and Communications Technology

Myanmar’s telecommunications sector is significantly underserved, with exceptionally low penetration rates given the size and potential of the market. Although the mobile subscriber base has grown five-fold in the last four years, official statistics report that there are 5.4 million subscribers as at December 2012, or a penetration rate of only 9 percent of the population (Figure 6.6).

Fixed-line subscriber numbers are growing erratically, with an overall penetration of around 1 percent of the population (0.6 million subscribers). Internet user penetration is even lower at less than 1 percent of the population (0.5 million subscribers). Yangon and Mandalay account for majority of the

mobile and fixed-line subscribers.

Figure 6.6: Mobile User Penetration Rate in Southeast Asia, 2011



Source: World Bank

Opportunities for the Private Sector. To achieve the target of increasing mobile phone density to 75 percent to 80 percent and internet penetration by over 50 percent by FY2015-2016, the government has committed to undertake several reforms:

- Under the Framework for Economic and Social Reform, the government is developing an Information and Communications Technologies (ICT) Master Plan. This plan aims to enhance ICT adoption in the country and strengthen industrial competitiveness by promoting information technology and knowledge management.

- The proposed Telecommunications Law and the Cyber Law are expected to set out the government's plans to separate the policy, regulatory and operational roles of the government in the telecommunications sector. An independent regulator will be established to supervise the ongoing process of liberalisation and opening up of the telecommunication sector.

- State-owned Myanmar Post and Telecommunication, currently the country's sole operator, will be privatised into the Myanmar Telecoms Company and awarded one of the country's mobile phone licenses. Another license will be given to local internet service provider Yatanapon Teleport.

A significant development in the sector was when the government invited foreign investors to register their interest to bid for two of four remaining national telecommunications licenses in January 2013 as part of the planned expansion of mobile networks. The government was able to award the licenses to two international operators.

Meanwhile, Sumitomo Corporation and NEC Corporation, in cooperation with NTT Communications Corporation, concluded a network upgrade contract with the Ministry of Communications and Information Technology of Myanmar on 14 May 2013. This is the first infrastructure project in Myanmar that capitalises on Official Development Assistance (ODA) from Japan since the latter's adoption of a new economic cooperation policy towards Myanmar in April 2012.

On 28 December 2012, JICA concluded a grant agreement with Myanmar, amounting to 1.71 billion yen in ODA. This grant will fund Myanmar's improvement plan on its communications network, which includes strengthening the connections between Myanmar's three leading cities, and improving the procurement of equipment as well as installation and operation of internet connections.

Energy & Power

In a knowledge and network age, electricity is essential in all sectors of the economy. Thus, the state works to provide sufficient electricity to the public by all possible means. Electricity generation plants, including hydro-electricity projects, are under way.

Myanmar would need about 112,000 MW to service all households at the minimum consumption level of 10 kW per household per day. Currently, Myanmar's electricity installation capacity is still very low. Myanmar will need a huge investment in the electric sector if it were to meet the average electricity consumption level of developing economies of the ESCAP region of 382 kWh per capita annually (UN/ESCAP).

In 2010, Myanmar produced 7,543 million kWh of electricity, the bulk of which was from hydropower (68%), followed by gas-fired (23%) and thermal (9%) sources (Central Statistical Organization, 2012). Although the country’s installed capacity exceeds the peak load (by about 130%), plants' output is low

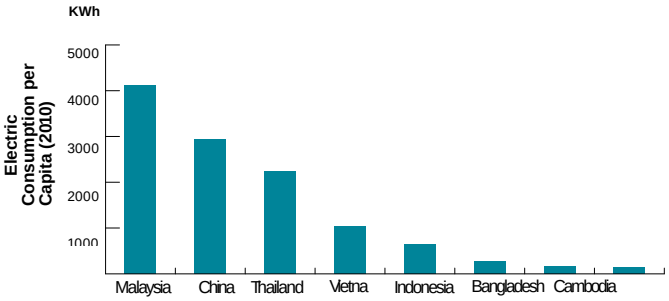
due to inadequate maintenance and lack of compression in the gas pipeline, which reduces the flow of gas. Moreover, during the dry season, the hydropower plants receive insufficient water to generate at full capacity.

Myanmar now hopes to develop a comprehensive energy framework that will make the best use of its resources. Obviously, its own energy development potential reflects at least three significant trends: the significant growth of power generation based on natural gas, a fuel with which Myanmar is richly endowed; the modernisation of transmission and distribution (and eventually, the so-called smart grid); and the growth of distributed power or the creation of off-grid solutions that are particularly important for rural areas.

Myanmar's abundant energy resources include renewable alternatives such as hydropower, biomass, wind, and solar energy. Its primary energy supply includes coal, oil, gas, hydropower, and biomass. Hydropower is the main source of fuel as it accounts for nearly 70 percent of the total electricity generated in the country. Other main sources are natural gas and coal at 22 percent and 8 percent of the total energy generated, respectively.

Myanmar’s per-capita electricity consumption is the lowest among the 10 ASEAN at 100 KWh in 2010, compared to a consumption of around 600 KWh in Indonesia and over 2,000 KWh in Thailand (Figure 6.7). It is estimated that only a quarter of Myanmar's population currently has access to a regular supply of electricity, and even Yangon is plagued by frequent outages, limiting economic growth and development. The low national average per-capita electricity consumption is due to the low electrification rate (Table 6.1), low industrial development and lack of investments.

Figure 6.7: Electric Consumption per Capita in 2010



Source: World Bank.
Energy Statistics, International Energy Agency (IEA)
International Energy Statistics, US Energy Information Administration.

Table 6.1: Electricity Connectivity and Consumption (2009) in Selected Asian Nations

	Electrification Rate (%)	Millions without Power	Consumption (kWh/person)
Malaysia	99.4%	0.2	3614
China	99.4%	8	2631
Thailand	99.3%	0.5	2045
Vietnam	97.6%	2.1	918
Indonesia	64.5%	82	590
Bangladesh	41.0%	96	252
Cambodia	24%	11	131
Myanmar	13.0%	44	104

Source: IEA, World Bank.

The country's average electrification grew from 16 percent in 2006 to 26 percent in 2011. Big cities are relatively well electrified: 67 percent for Yangon, 54 percent for Nay Pyi Taw, and 31 percent for Mandalay, while rural areas remain poorly supplied at an electrification ratio of about 16 percent only. Out of 62,218 villages, 2,765 are electrified by the nation's distribution network and 14,195 villages via a "self-help basis" (such as biomass, solar, wind, diesel, mini hydro, biogas).

Myanmar's Framework for Economic and Social Reform states that the energy sector will be further liberalised through the deregulation of prices, adoption of appropriate taxes, and elimination of across-the-board subsidies in the energy sector. Myanmar is also developing a master plan for the electricity sector that

will project future electricity consumption, design a strategy to meet those consumption requirements and identify necessary regulatory reforms.

Opportunities for the Private Sector. There are significant opportunities for both foreign and domestic companies to invest in the generation, transmission and distribution of power. With a population of 60 million and rapid economic growth, Myanmar has the potential to attain higher power consumption levels over the next two decades. Provided the economic reforms in the country are sustained, the country can see a capacity uplift of up to 50 GW in the timeframe. This would entail an investment of roughly US$50 billion in the power generation sector.

According to the Foreign Investment Law released in November 2012 and the subsequent rules issued in January 2013, foreign investments in the production of electricity through hydropower and coal-fired plants have to be approved by the government, and can only be effected through a joint venture with the state or via a Build-Operate-Transfer (BOT) arrangement. Foreign investment is not allowed in the trading of electricity or inspection services in this sector.

National Development Plan for Infrastructure Myanmar's fifth Five-Year Plan (2011-2012 to 2015-2016) specifies the following infrastructure policies:

Roads and Bridges

- With the change in the political system, roads in the country should be upgraded to international standards.
- International routes connecting to Myanmar and have a daily traffic density of over 5,000 shall be 72 feet wide of tarred and concrete roads while daily density of 2,000 to 5,000 must have a width of 48 feet. Furthermore, those with daily traffic density of 300 to 2,000 shall be 24 feet wide, and those with 200 to 300 daily traffic density should measure 22 feet wide.
- Bridges on the highways should be of international standards.

- Under a PPP programme, national entrepreneurs will be invited to engage in the BOT system and thus promote private sector development.

- Invite foreign direct investments (FDI) to engage in road and bridge projects and use loans from Asian Development Bank (ADB) and World Bank to upgrade roads and bridges.

Transportation Sector

- To develop both domestic and external water transportation and air transportation under the prevailing political and economic systems, efforts should be made to implement the regulation set down by the International Civil Aviation and marine federations.

- The Ministry of Rail Transportation will provide services for the industrial sector and help promote a progressive nation.

Communications Sector

- Amend laws and regulations or create new ones to be in line with the changing environment.

- Allow private participation in the construction of communication facilities and invite domestic and foreign companies to invest under the PPP system. Also, promote communication services of both domestic and foreign private sectors.

- Provide communication services of international standards and find ways and means to acquire international investment.

- Find ways and means to cooperate with experienced international communication companies.

- Provide standard mobile telephones to the public at less price and continue to extend these services to the rural areas.

- Promote and upgrade both foreign and local quality postal services by means of information technology and modern facilities in collaboration with the private sector.

- Create investment opportunities for both national and foreign investors in the production of communication products.
- Connect telegraphic activities with information technology so as to provide effective services to the public.
- Upgrade postal and telecommunication training schools so as to produce skilled personnel.

Energy Sector

- Sustain the country's non-dependence on energy imports.
- Exert efforts to use new and renewable energy resources.
- Promote efficiency and conservation of energy use.
- Promote the use of other energy substitutes for domestic purposes.
- Encourage the public to effectively use extracted oil and natural gas.
- Urge private participation in the energy sector.

Power Sector

- Ongoing power projects should be completed at high quality and on time.
- In constructing large, medium and small power projects, explorations should be done continuously.
- Get power generation plants to produce at full capacity.
- Mitigate the negative impact of power projects and electricity supply facilities on the natural environment; encourage proper maintenance of facilities.
- Supply and distribute electricity nationwide.

The government has strong and clear intent to improve infrastructure so that it becomes an enabler of economic growth. It is implementing its targets by taking the following steps:

- **Creating clarity and predictability in its regulatory framework for infrastructure sectors.** The promulgation of the Foreign Investment Law and drafting of the Telecom Law, Special Economic Zones Law, and Condominium Law are steps in the right direction;

- **Building institutional capacity within the government to prioritise and procure the needed infrastructure that provides "value for money".** Experiences gained in the energy sector and existing knowledge obtained by telecommunications and transport sectors regarding procurement methods can serve as templates that can be adopted by procurement teams in other infrastructure sectors;

- **Actively encouraging the development of partnerships between foreign and local participants to bring together international know-how and local context.** Because the Foreign Investment Law makes joint ventures the preferred mode for several sectors, infrastructure providers gain local know-how and context. This international collaboration also helps in the development of local enterprises, and transfer of technology and managerial capabilities;

- **Developing the banking system and financial markets so as to allow free flow of capital to support infrastructure investment.** The Central Bank of Myanmar Law can address some of the outstanding issues in the sector---particularly issues on foreign banking, establishment of capital markets, and price stabilization.

- **Fostering public goodwill towards infrastructure projects by demonstrating their economic benefits and potential for creating jobs.** Requiring all large projects in the future to be environmentally sound and to work for a positive socio-economic impact will help achieve sustainable and inclusive development.

Myanmar has made enormous strides in integrating into the global community and promoting economic development. The government is focused on sustaining that momentum, but significant challenges remain. Most pressing is the country's need to develop its infrastructure and increase its power-generation capacity so as to continue its growth.

Without electricity, developing countries such as Myanmar have no chance of addressing basic requirements in health, job creation, and sustainable

development. Per-capita electricity consumption in Myanmar is among the lowest in Asia at 27 percent. The rate is even lower in most rural areas.

Myanmar plans to develop a comprehensive energy framework that will make the best use of its resources. Obviously, its own energy development potential reflects at least three significant trends: the significant growth of power generation based on natural gas, a fuel with which Myanmar is richly endowed; the modernisation of transmission and distribution facilities (and eventually, the so-called smart grid); and the growth of distributed power or the creation of off-grid solutions that are particularly important in the rural areas.

A good government policy that enables and attracts effective cooperation with the private sector is also critical. This can lead to more investments and long-term commitments from companies, allowing Myanmar to develop infrastructure that will promote growth and improve the quality of people's lives.

Infrastructure Financing

National Source of Infrastructure

The Myanmar government has allocated a total of 7.8 trillion kyat (US$9.5 billion) for the construction and renovation of roads and bridges during the period 2012-2031. This initiative is divided into four phases, the first (2012-2016) of which will require 2.82 trillion kyat (US$3.3 billion) of the budget (Table 6.2).

Development partner ADB has likewise placed the maintenance and construction of infrastructure on top of its list of priorities for its country partnership strategy with the Myanmar government. Needless to say, infrastructure projects will play a crucial role in bridging Myanmar’s rural and urban divide and give the floundering economy more connectivity with its ASEAN neighbours.

The infrastructure expansion portion of the government programme foresees 28 companies working with the government under BOT arrangements to complete 60 main roads measuring 4,700 km. Companies entering into these contracts with Myanmar will be exempted from incomes tax for 30 years.

Beyond the development of domestic roads, Myanmar is looking to link up with international transport systems, preparing itself for the formation of the ASEAN Economic Community (AEC) in 2015.

The lack of water infrastructure in the country has also come under scrutiny. Thus, the Ministry of Transport will partially privatise the Inland Water Transport Corporation and create joint ventures to turn some companies that are under the Corporation into economically independent entities.

Because inland waterways are already a major form of transport—particularly since Myanmar is endowed with one of the largest river networks in the world—the privatisation measure will offer opportunities for investors to tap into a socially accepted form of transit that is cheap for commuters. Inland waterways carry an estimated 25 million passengers and 4 million tonnes of cargo in the country every year.

Table 6.2: Government's Financing of Infrastructure (Kyat million)

Item	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Roads and Bridges	509,331.0	240,507.6	550,650.7	913,836.7	748,684.3
Railways	113,073.8	226,762.8	375,117.3	314,236.7	258,769.7
Communications	39,974.3	31,169.2	112,698.8	192,695.9	96,283.9
Airways	17,625.3	15,679.7	31,669.7	32,907.6	32,502.2
Inland Waterways	1,298.3	500.0	714.0	728.3	742.8
Electric Power	142,937.0	308,652.2	1,191,123.6	1,177,989.6	948,572.2
Energy	16,260.8	128,575.0	254,348.4	575,558.6	412,219.6

Source: Fifth Five-Year Plan, Ministry of National Planning and Economic Development.

Capital Market Development

The country's Capital Market Development Committee was organised on 1 July 2008, while the road map for the development of its capital market was already aligned with the timeframe for the development of the ASEAN Integrated Capital Market. There are three phases in that road map. The first phase was implemented from 2008 to 2009; the second phase, from 2010 to 2012; and the third phase, from 2013 to 2015.

The Central Bank of Myanmar has been issuing two-year government treasury bonds and 10 million kyat-denominated treasury bonds since 1January 2010, with Myanma Economic Bank (MEB) and Myanmar Securities Exchange Centre Co., Ltd (MSEC) as underwriters.

To further develop the country's bond market, Myanmar became part of the ASEAN Bond Market Initiative (ABMI) programme. With support from the Japan-ASEAN Financial Technical Assistance (JAFTA), the country received technical assistance from the ASEAN Secretariat-assigned company, Daiwa Institute of Research. The technical assistance under the first phase was implemented from June 2011 to May 2012.

A memorandum of understanding on the "Capital Market Development in Myanmar" was likewise signed by the Central Bank of Myanmar and Tokyo Stock Exchange (TSE)/Daiwa Institute of Research on 29 May 2012. Subsequent memoranda of understanding between Myanmar, and TSE/Daiwa Institute and Policy Research Institute of Japan involved additional technical assistance to the country.

Meanwhile, the draft of the Securities and Exchange Law has been approved by the National Parliament and submitted to the People's Parliament.

Projects with International Investments

Projects with India:

- Kalay-Tamu route (160.9 km) upgraded into tarred and cemented roads.
- Kalaywa-Yargyi route (121.7 km) MOU on upgrade activities was signed.

- Paletwa-Setpyit Pyin-Myeikwa route (121.9 km) will be built by Max Myanmar with the help of a US$120 million loan from India.

- Teetein-Reid road upgrade (50.9 km) MOU signed with a US$60 million loan from India.

Projects with China:

- Shweli-Kyaukpyu highway to connect Kyaukpyu deep seaport (1,000 km) was completed.

- Minbu-Aan-Kyaukpyu road and the Sipaw-Shweli road are to be connected.

Projects with Thailand:

- Myawaddy-Thingun Nyi Naung route (18 km) to be upgraded via Thai loans.

- Thingun Nyi Naung-Kaukareik road (28.6 km) to be upgraded into a 24-feet wide, international-standard road.

- Tavoy-Funarum road (132 km) that links Tavoy Deep Seaport and Thai Funarum village is under discussion as a BOT project.

- Myanmar-Thai Friendship Bridge No. 2, Myawadi is to be built with the Thai government's assistance; feasibility study has been completed.

Projects with Korea:

- Minbu-Ann road (156.1 km) is built by Korea Expressway Co.

- Taunggyi-Kyaington road (452 km) is to be built by Korea Expressway Co.

- Kawkrate-Mudon road (102 km) is being discussed to be built by Korea Expressway Co.

Projects with Japan:

- Storm-ravaged Pokkoku region will be assisted by contributing 53 machineries worth 0.8 billion yen; MOU already signed.
- Kyeinpin Dam-Setkawt-Danupyu-Zalun road is to be upgraded via JICA's assistance.
- Roads in Karen State and Rakhine State to be upgraded with Japanese assistance.

Projects Under Discussions

With Korea:

- Monwya-Pale-Gangaw road (180.2 km), part of Asia-ASEAN Highway 1 is to be upgraded; discussions with KOICA in progress.

With Japan:

- Three bridges on Hlaing bwe-Paing Kyone road in Karen State to be built.
- Run-down Thakayta bridge in Yangon Region to be rebuilt.
- Roads in Karen state and Boothi Taung-Maung Taw road in Rakhine State are being upgraded and maintained.

With China:

- Nang Pan Chaung bridge (Shan State)
- Thet Ke Taung bridge in Irrawaddy Region
- Than Lwin river bridge
- Hinegyi Kyun bridge
- Kyun Pyattad bridge in Irrawaddy Region

Public-Private Partnerships (PPP)

Public-Private Partnerships dominate long-term projects on roads and bridges through the BOT system. There are rules and regulations on such provided by the State Law as well as the ASEAN BOT scheme. Myanmar currently has 61 road projects covering 5,895 km under the BOT system and being carried out mostly by local companies. Around 15 percent of these projects are managed by the Ministry of Construction, Public Works.

Major Challenges

At present, Myanmar needs to deal with the following problems in infrastructure development:

- **Lack of technical knowledge:** Myanmar lacks knowledge and experience in building or even planning its most needed infrastructure. It is impossible to make major economic progress without an appropriate infrastructure development knowhow.

- **Lack of skilled domestic workers:** Even if there is technical knowledge on the construction and maintenance of infrastructure, there remains inadequate technically skilled workforce that can build and maintain the infrastructure. Finding or developing the necessary skills for infrastructure development and maintenance is the first major challenge to hurdle.

- **Unsound foreign advices:** Inappropriate or flawed advices can have a negative impact on Myanmar's changing economy. Thus, outside sources must maintain transparency as well as objectivity in their advices on infrastructure projects.

- **Problems with prioritisation:** There is a strong positive association between public investment in infrastructure and economic growth. Infrastructure development, however, involves two dimensions: the physical and the human capital, both of which are critical and necessary. Under a scenario where funds are constrained, there should be a delicate balance between these two dimensions. After all, together, they will have a

synergistic impact on Myanmar's economic development. There has to be a framework that will consider this all-important point on prioritisation.

- **FDI-related infrastructure issues:** FDI-related economic activities can expand international trade but not necessarily achieve internal economic development. There are countries that have some of the most modern seaports and airports, but have poorly developed domestic infrastructure. Thus, while they may be enjoying high revenues from exports (In Myanmar case, gas export), their GDP per-capita remains low.

Conditions surrounding infrastructure for domestic productivity needs somewhat differ from that of export-oriented infrastructure, including smaller volumes of products moving shorter but varied distances. With the prevailing poverty level in Myanmar, management of the massive FDI inflows would also mean factoring in this challenge on domestic productivity into the nation's infrastructure decisions.

One of the key issues in Myanmar is that there are too many priorities from all sides for the limited funds. The government may be even more sensitive to political pressures. As a result of this sensitivity, prioritisation and maintenance of the country's infrastructure are likely to be politicised. Under such a scenario, the country's economic progress will most likely be disrupted.

Given that various problems in the planning and maintenance of infrastructure can occur and that Myanmar still lacks an infrastructure maintenance tradition, the need for a strategy on how to continue the development and maintenance of infrastructure-related activities is all-too important to ignore. An infrastructure development plan for a rapidly changing country such as Myanmar is the first step to take.

Conclusions and Recommendations

Financing of infrastructure development will involve both domestic and foreign sources, thus:

- Myanmar should seek resources from public savings and private savings to finance its infrastructure programmes. The Central Bank of Myanmar Law should address some of the outstanding issues in the financial sector if it were

to help develop its banking system and financial markets and to allow the free flow of capital into infrastructure projects.

- A clear regulatory framework on the PPP scheme should be created for the infrastructure sector by promulgating a Private Citizen Investment Law and Enterprise Law.

- Capacity building and skill trainings should be part of the infrastructure development.

- Given the prevailing poverty level of the people, the massive FDI inflows into Myanmar should accommodate infrastructure projects that promote domestic productivity.

- Infrastructure, which powers all kinds of economic activities in Myanmar's case, needs financing, including FDIs. It thus makes sense to encourage the partnership between foreign and local participants because it brings together both international know-how and local context knowledge. The Foreign Investment Law should accommodate this requirement as such can help transfer technological and managerial capabilities/knowledge to local enterprises.

- With its bountiful natural resources in both land and labour, Myanmar has been called by the international business community as the last economic frontier. Myanmar's ability to translate natural resource wealth into prosperity will be dependent upon its skill to nurture domestic capacities, including human capital, and to create infrastructure and services that drive industries and benefit supply chains.

- Despite the rich natural resources, the per-capita consumption of energy in the country is the lowest in Asia. Only 26 percent of the population has access to electricity via the national grid, while domestic supply falls far short of the demand needed by 60 million citizens. Therefore, it is important to create new opportunities for domestic companies to enter the energy market at key points in the value chain.

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Annex 1

Table 6.A.1: Road Transport in Myanmar

Code	Indicator Name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measure-Ment	2004	2005	2006	2007	2008	2009	2010
A.	**Road infrastructure**									
001	Total road length		Thousand Kilometre	90.713	92.859	104.05	111.74	125.355	127.942	136.749
002	Length of paved road		Kilometre	22,153	22,830	23,955	24,670	25,553	26,333	28,569
003	Ratio of paved road to total road length		Percent	24.42	24.58	23.02	22.08	20.38	20.58	20.89
004	Total length of expressways		Kilometre	-	-	-	-	-	323.6	587
B.	**Road transport equipment**									
005	Total number of registered road motor vehicles		Thousand	960	979	992	1,024	1,994	2,068	2,299
006	Number of registered passenger cars		Thousand	186	193	200	214	230	243	260
007	Number of taxis or taxicabs		Thousand	38	39	38	38	28	27	28

Code	Indicator Name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measure-Ment	2004	2005	2006	2007	2008	2009	2010
008	Number of registered trucks		Thousand	53	54	55	57	59	60	64
009	Total number of registered buses		Thousand	18	18	19	19	20	20	21
010	Number of public buses		Thousand	15	15	16	17	29	25	28
011	Total number of registered motorcycles		Thousand	638	640	646	655	1,607	1,674	1,881
C.	**Road transport measurement**									
012	Total number of road passengers		Thousand	38,100	38,885	40,257	40,657	1,631,886	1,997,371	1,294,129
013	Number of taxi passengers (million)		Thousand	N/A	N/A	N/A	N/A	N/A	N/A	N/A
014	Number of public bus passengers		Thousand	38,100	38,885	40,257	40,657	1,647,623	1,150,066	1,303,175
015	Road passenger-kilometre		Million passenger-kilometre	2,280	2,329	2,381	2,464	16,872	150,596	270,536

Code	Indicator Name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measure-Ment	2004	2005	2006	2007	2008	2009	2010
016	Total operational mileage of public buses		Million kilometre	19	18	18	19	20,794	7,756	3,759
017	Freight		Thousand ton	2,099	2,289	2,377	2,395	22,733	30,474	20,664
018	Freight-kilometre		Thousand ton-kilometre	393,597	421,198	448,693	478,848	1,128,224	2,320,487	2,206,485
019	Number of traffic accidents		Cases / Numbers	28	19	27	15	12	11	8
020	Number of traffic accident casualties (dead)		Person	1,273	1,331	1,362	1,638	1778	1845	2,264
020	Number of traffic accident casualties (injuries)		Person	10,452	10,484	11,358	12,358	11,558	13,180	14,130
D.	**Others (enterprises, logistics & economic performance)**									
021	Number of trucking companies		Person					638	527	546
022	Number of domestic forwarders		Company					644	716	734
023	Number of warehouse companies		Company							
024	Number of fixed route bus operators		Company					1,582	1,129	1,184

Code	Indicator Name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measure-Ment	2004	2005	2006	2007	2008	2009	2010
025	Total number of new driving licenses issued for automobiles		License	966,472	1,011,864	1,048,990	1,073,455	1,093,239	1,099,738	1,177,204
026	Total number of new licenses issued for motorcycles		License	388,940	529,928	668,462	760,601	985,758	1,101,450	1,291,087
027	Total domestic freight volume by road		Thousand ton					20,317	34,991	20,560
028	Total domestic freight movement by road		Million ton-kilometre							
029	Total import cargo by road		Thousand ton					457	1,105	1,076
030	Total export cargo by road		Thousand ton							

Annex 2

Table 6.A.2: Length and Width of Sule Pagoda Wharves and Type of Cargo Handling

No	Name Of Wharf	Type Of Terminal	Quay Length (M)	Apron Width (M)	Vessel DWT
1	SPW(1)	General Cargo	137	12.2	15,000
2	SPW(2)	General Cargo	137	12.2	15,000
3	SPW(3)	General Cargo	137	12.2	15,000
4	SPW(4)	General Cargo	137	12.2	15,000
5	SPW(5)	General Cargo	168	15.2	15,000
6	SPW(6)	General Cargo	162	15.2	15,000
7	SPW(7)	General Cargo	162	15.2	15,000

Source: Myanmar Port Authority (MPA).

Table 6.A.3: Container Handling at Bo Aung Gyaw Street Wharves

Sr.	Year	Import		Export		Total	
		(TEU)	M' Ton	(TEU)	M' Ton	(TEU)	M' Ton
1	2000-01	58938	666757	58702	791908	117641	1458665
2	2001-02	46034	562548	46007	645404	92041	1207952
3	2002-03	32241	369775	32912	429306	65153	799081
4	2003-04	26544	328983	24940	384997	51484	713980
5	2004-05	21565	275714	19988	348121	41553	623835
6	2005-06	26980	370008	23594	403491	50574	773499
7	2006-07	26179	331708	26069	497884	52248	829592
8	2007-08	32803	459295	31075	593533	63878	1052828
9	2008-09	28101	400943	23046	437074	51147	838017
10	2009-10	33193	495016	25727	394720	58920	889736

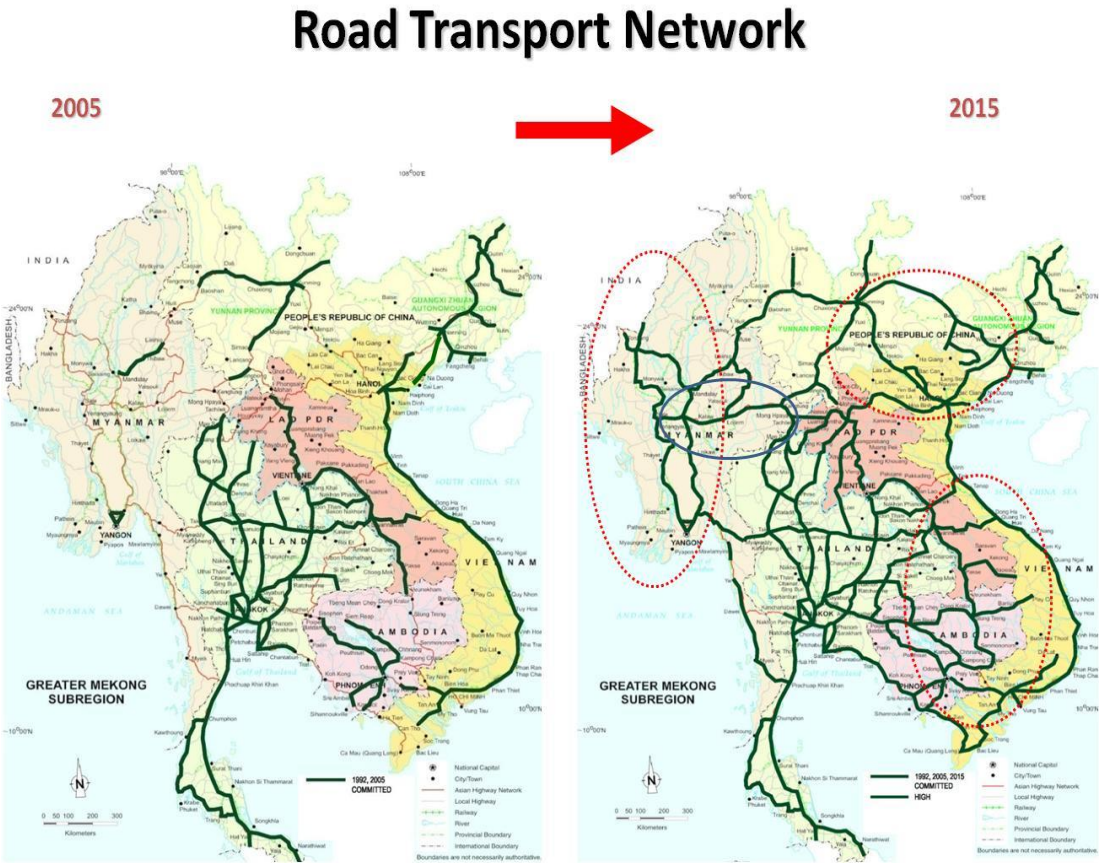
Source : Myanmar Port Authority (MPA).

Table 6.A.4: Number of Vessels Called, Container and General Cargo Handling at MITT*

Year	General Cargo		Container		
	Number Of Vessel Called	Tonnage	Number Of Vessel Called	TEU	Tonnage
2000-2001	83	544,009	96	41,856	644,699
2001-2002	86	669,545	105	58,248	890,023
2002-2003	82	779,808	94	54,918	861,603
2003-2004	93	636,642	43	31,354	563,149
2004-2005	96	615,832	42	34,964	615,059
2005-2006	102	676,706	39	35,728	600,121
2006-2007	98	584,907	46	47,467	778,586
2007-2008	116	822,735	54	42,771	626,205
2008-2009	104	954,799	70	37,585	605,628
2009-2010	166	1,479,726	52	23,267	655,099

Source : **Myanmar International Terminals Thilawa (*MITT).

Figure 6.A.1: Road Transport Network in Myanmar 2005 vs 2015



Myanmar Industrial Port

Myanmar Industrial Port (MIP) is situated downstream of the Asia World Port in Yangon River. Its land area is owned by Ministry of No. (1) Industry and built by Myanmar engineers under the Build-Operate-Transfer system. Managed and operated by Myanmar Anawar Swan Arh Sin Group Co., Ltd, the port officially opened on 4 January 2003. It has island-type wharf with three trestles measuring 110 metres long and 12.2 metres wide. The three trestles connect the two wharves with the land and each wharf is 155 metres in length with apron width of 18 metres. The available water depth alongside the wharf-head of both wharves is 10 metres below datum so that the largest available vessel entering the Yangon River can be accommodated at the MIP. It has space for custom examination of 26 tracks for import and 26 tracks for export. It also has main container freight station, customs office, administration office, and security office.

The porthas an inland container depot and container terminal area of 102,385 sq m. Total container freight station area (including No.1, No.2 and main container freight stations) is 6,140 sq m.

Container storage capacity is 3,260 TEU for laden container at three heights, 360 TEU for refer container at two heights, and 4,500 TEU for empty container at six heights.

Table 6.A.5: Number of Vessels, G.C. and Container Handling in Each Budget Year at MIP*

Sr.	Budget Year	No. of Vessel	Container and General Cargo		Total Tonnage
			Import	Export	
1	2003 (Jan - Mar)	10	38,559	53,409	91,968
2	2003-2004	48	109,054	244,177	353,231
3	2004-2005	65	111,813	271,700	383,513
4	2005-2006	96	142,983	416,867	559,850
5	2006-2007	91	133,741	385,143	518,784
6	2007-2008	70	180,607	339,307	519,914
7	2008-2009	84	284,176	405,315	689,419
8	2009-2010	93	424,729	327,920	752,649
9	2010-2011	139	729,800	480,490	1,210,290

Source : *Myanmar Industrial Port (MIP).

Table 6.A.6: Cargo Handled in All Ports of Yangon (by TEU and metric ton)

No	Year	Import (TEU)	Export (TEU)	Total (TEU)	Total MT
1	2000-2001	80,406	79,091	159,497	2262,428
2	2001-2002	95,366	93,483	188,849	2658,216
3	2002-2003	97,573	98,140	195,713	2838,689
4	2003-2004	86,867	86,457	173,324	2676,184
5	2004-2005	78,223	77,361	155,584	2664,521
6	2005-2006	86,130	85,775	171,905	2606,160
7	2006-2007	99,942	97,337	197,279	3148,045
8	2007-2008	115,267	111,236	226,503	3462,489
9	2008-2009	133,712	130,294	264,006	3937,131
10	2009-2010	152,077	151,333	303,410	4372,025

Source : Myanmar Port Authority (MPA).

Annex 3

Table 6.A.7: Water Transport in Myanmar

Code	Indicator name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measurement	2004	2005	2006	2007	2008	2009	2010
A.	**Maritime transport infrastructure**									
201	Number of domestic ports		Count	22	22	22	22	22	22	22
202	Number of international ports		Count	9	9	9	9	9	9	9
B.	**Maritime transport equipment (vessels)**									
203	Number of domestic passenger fleet		Count				16	16	16	12
204	Number of domestic cargo fleet		Count				166	166	139	104
205	Gross tonnage of domestic passenger fleet		Thousand ton				10.75	11.75	12.13	10.67
206	Gross tonnage of domestic merchant fleet		Thousand ton				47.46	47.46	44.16	73.46
207	Number of international merchant fleet		Count				20	23	12	19
208	Number of international container vessel fleet		Count				4	4	4	2
209	Gross tonnage of international merchant fleet		Thousand ton				135.66	155.01	239.60	131.55
210	Gross tonnage of international container vessel fleet		Thousand ton				39.55	39.55	37.80	19.77

Code	Indicator name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measurement	2004	2005	2006	2007	2008	2009	2010
C.	**Maritime transport measurement and traffic**									
211	Domestic sea passenger traffic		Thousand person				363	n/a	205	31
212	Domestic sea cargo throughput		Thousand ton	1,574	1.477	1,816	2,177	1,921	1,929	1,901
213	Number of domestic ship calls		Thousand times	1,400	1,205	1,142	1,221		812	912
214	International sea passenger traffic		Thousand person	3.868	3.072	7.030	3.476		3.888	3.692
215	International sea cargo throughput		Thousand ton	9,799	10,181	10,955	10,922	11,541	9,021	15,947
216	International sea container throughput		Thousand TEUs	116	172	197	267	264	303	347
217	Number of international ship calls		Thousand times	1.691	1.228	1.310	1.336	1.448	1.743	2.023
D.	**River transport infrastructure**									
218	Number of river ports		Count	249	249	249	249	249	249	235
219	Total waterway route length		Kilometre	21,561	21,561	21,561	21,561	21,561	21,561	16,055
E.	**River transport equipment (vessels)**									
220	Number of passenger river fleet (domestic/international)		Count	197	200	201	194	182	146	146
221	Number of domestic cargo river fleet (domestic/international)		Count	105	103	100	103	92	80	80
F.	**River transport measurement and traffic**									
222	River passenger traffic (domestic/international)		Thousand person	24,719	25,345	26,328	26,886	27,418	27,109	27,571

Code	Indicator name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measurement	2004	2005	2006	2007	2008	2009	2010
223	River cargo throughput (domestic/international)		Thousand ton	4,307	4,262	4,284	4,479	4,657	4,684	4,791
G.	**Others (enterprises, logistics and economic performance)**									
224	Total domestic freight volume by sea		Thousand ton	1,574	1,477	1,816	2,177	1,921	1,928	1,901
225	Total domestic freight movement by sea		Million ton-kilometre	1,574	1,477	1,816	2,177	1,921	1,928	206
226	Total import cargo by sea		Thousand ton	n/a	n/a	n/a	n/a	n/a	6,550	9,933
227	Total export cargo by sea		Thousand ton	n/a	n/a	n/a	n/a	n/a	9,237	12,287
228	Total domestic freight volume by river		Thousand ton	4,307	4,262	4,284	4,479	n/a	4,733	4,786
229	Total domestic freight movement by river		Million ton-kilometre	n/a	n/a	n/a	n/a	n/a	1,092	1,394
230	Total import cargo by river		Thousand ton	n/a	n/a	n/a	n/a	n/a	n/a	
231	Total export cargo by river		Thousand ton	-	-	-	-	-	-	Non

Annex 4

Table 6.A.8: Railway Transport in Myanmar

Code	Indicator name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measure-Ment	2004	2005	2006	2007	2008	2009	2010
A.	**Railway transport infrastructure**									
101	Total railway route length		Kilometre	4,867.8	4,867.8	4,946.8	5,038.2	5,124.8	5,301.3	5,672.2
102	Double-track railway route length		Kilometre	449.6	449.6	481.6	700.8	700.8	700.8	700.8
103	Electrified track railway route length		Kilometre	Nil	Nil	Nil	Nil	Nil	Nil	Non
104	Urban railway route length		Kilometre	74.4	74.4	74.4	74.4	74.4	74.4	82.8
B.	**Railway transport equipment**									
105	Number of railway locomotives ready for operation		Count	217	239	261	262	271	294	332
106	Number of passenger coaches		Count	1,117	1,104	1,186	1,203	1,201	1,238	1,257
107	Number of freight wagons		Count	3,698	3,471	3,304	3,248	3,252	3,427	3,355
C.	**Railway transport measurement; traffic**									
108	Total number of rail passengers		Million persons	57.7	65.4	73.6	73.6	75.2	72.3	68.8

Code	Indicator name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measure-Ment	2004	2005	2006	2007	2008	2009	2010
109	Rail passenger-kilometre		Million passenger-kilometre	1,440.3	4,565.9	5,232.8	5,278.8	5,481.8	5,296.4	5,335.6
110	Freight		Thousand ton	2,847	2,894	2,901	2,825	2,976	3,236	3,322
111	Freight-kilometre		Million ton-kilometre	866.7	922.3	908.6	827.8	904.9	1,020.7	1,085.2
D.	**Others (enterprises, logistics, and economic performance)**									
112	Total domestic freight volume by rail		Thousand ton						3,236	3,322
113	Total domestic freight movement by rail		Million ton-kilometre						1,020.7	1,085.2
114	Total import cargo by rail		Thousand ton							Non
115	Total export cargo by rail		Thousand ton						Nil	Non

Annex 5

Table 6.A.9: Air Transport in Myanmar

Indicator Name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measurement	2004	2005	2006	2007	2008	2009	2010
Air transport infrastructure									
Total number of airports		Count	59	60	62	62	62	32	32
Number of international airports		Count	2	2	2	2	2	2	2
Number of domestic airports		Count	57	58	60	60	60	30	30
Air transport equipment (aircraft)									
Commercial aircraft fleet		Count	21	24	27	26	25	22	29
Air transport measurement; traffic and accidents									
Domestic air passenger traffic		Thousand person	1,284.8	1,322.6	1,897.0	1,089.4	826.1	772.6	862.1
Domestic air cargo traffic		Thousand ton	2.80	1.52	0.86	2.21	0.74	3.39	0.76
Domestic aircraft traffic		Count	22,546	29,933	16,119	16,824	22,263	21,834	23,880
International air passenger traffic		Thousand person	677.60	733.18	834.48	877.96	836.83	967.45	1,212.33
International passengers in transit		Thousand person	0.00	0.00	0.00	0.00	0.00	0.00	0.00
International air cargo loaded		Thousand ton	4.93	4.74	5.09	5.38	5.88	7.16	9.31

Indicator Name	Actual Definition Used/ Difference from the Suggested Definition	Unit/Scale of Measurement	2004	2005	2006	2007	2008	2009	2010
International air cargo unloaded		Thousand ton	4.46	4.56	4.62	4.73	6.35	6.28	6.36
International aircraft traffic		Count	7,600	7,870	8,026	8,602	7,184	7,889	11,234
Others (enterprises, logistics and economic performance)									
Number of airline companies		Count	5	5	5	5	5	5	5
Number of customs clearance points		place	8	8	8	8	2	2	2
Total domestic freight volume by air		Thousand tons	2.80	1.52	0.86	2.21	0.62	5.58	0.69
Total domestic freight movement by air		Million tons-km	-	-	-	-	0.034	0.067	0.041
Total import cargo by air		Thousand tons	4.93	4.74	5.09	5.38	6.35	6.28	6.36
Total export cargo by air		Thousand tons	4.46	4.56	4.62	4.73	5.88	7.16	9.31

CHAPTER 7

Philippines Country Report

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Introduction

This study looks at the financial sources for infrastructure projects in the Philippines in the last five years and analyses the country's current fiscal situation as it relates to infrastructure financing. It also gives updates on developments in public-private partnerships (PPPs) and describes the level of capital market development in the country. It is part of a larger study by the Economic Research Institute for ASEAN and East Asia (ERIA). While the larger ERIA study maps the regional financial sources and possible mechanisms to enhance regional cooperation in infrastructure development, this country study provides updates on the Philippines' contribution to regional financing and on efforts in developing the regional connectivity infrastructure.

To put in geographical context the challenge of financing infrastructure development in the Philippines, a map of the Philippine archipelago is presented in Figure 7.1 below. The archipelago is divided into three regions—Luzon, which consists of the main Luzon island and nearby islands in the north; Visayas, which consists of the cluster of islands in the centre; and Mindanao, which consists of the main Mindanao island and nearby islands in the south. A brief overview of the physical infrastructure connecting these islands is

[&] Senior research fellow and president of the *Philippine Institute for Development Studies*, respectively. The authors gratefully acknowledge the excellent assistance of Keith C. Detros and Ma. Kristina P. Ortiz.

discussed in the next section.

Figure 7.1: Map of the Philippine Archipelago.

Source: National Mapping and Resource Information Authority.

Overview of the Infrastructure Situation in the Philippines

This section presents the infrastructure stock to date and the population's level of access to infrastructure. Infrastructure sectors covered in this brief overview include the transportation, water supply, energy, and information and communications technology sectors. The Philippine Development Plan (PDP) 2011-2016 describes the current infrastructure stock as inadequate and the level of access as inequitable. For a long time, the government and the private sector have under-invested in infrastructure and the resulting inadequacy and inequitable access hamper the national government's goal to bring about inclusive growth in the country.

Transportation

Road assets consist of a total of 215,088 km of national roads, secondary roads, provincial roads, city roads, municipal roads, and *barangay* (i.e., smallest administrative unit in the Philippines) roads as of October 2012, of which 27 percent are paved and in good condition. Of these roads, national roads measure 25,443.44 km, where around 80 percent are paved (DPWH, 2013).

In maritime transport, there are 211 ports handling domestic traffic and 38 ports managing international traffic as of 2012 (ASEAN-Japan Transport Partnership, 2012). The domestic shipping fleet consists of 7,299 vessels with a gross tonnage of 1.76 million tons as of 2011(NSCB, 2012). The Philippine archipelago has what is called a nautical highway that allows vehicular traffic from highways to continue the inter-island journeys via roll-on/roll-off (RORO) ferries along 12 specific routes. However, RORO ferries have pulled out their operation in five out of these 12 routes mainly due to port underdevelopment[1].

The country currently has 10 international airports serving international flights, 34 principal airports catering to domestic flights, and 41 community airports used by general aviation aircrafts. The dramatic increase in air traffic in recent years, coupled with inadequate infrastructure investments, has led to

[1] Based on an interview conducted with MARINA Domestic Shipping official. July 2013.

congestion in airports. For example, the Ninoy Aquino International Airport is designed to accommodate only 36 aircraft movements (take-off and landing) per hour, but actual aircraft movements reached 50 per hour in the summer of 2012 (DOTC, 2012).

Water Supply

The water supply sector is quite fragmented. There are numerous water providers, including 511 water districts[2], 475 private water utilities[3], and a still undetermined number of small water service providers. As of 2011, around 86 percent of Filipinos had access to safe drinking water(NEDA, 2012).

Energy

Power generation is a competitive business, where the total capacity is 16,162 megawatts (MW) of installed capacity and 14,477 MW of dependable capacity. The generation capacity margin is tight, and frequent power shortages have been occurring in Mindanao in the past two years. Transmission is a natural monopoly, and the grid is operated by a private firm. The distribution sector consists of 119 electric cooperatives and 25 private and local government-owned utilities. As of 2010, 73.7 percent of Filipino households had access to electricity.[4]

Information and Communications Technology

Information and communications technology (ICT) is a competitive and private sector-driven industry, with a total of 70 local exchange carriers and nine cellular mobile radio service providers nationwide as of 2011[5]. Teledensity in 2012 was at around seven installed lines per 100 Filipinos[6]. In the same year,

[2] Based on an interview conducted with Local Water Utilities Administration (LWUA). July 2013.

[3] Raw data retrieved from 2009 registration data of the National Water Resources Board.

[4] Raw data retrieved from the Department of Energy.

[5] Raw data retrieved from the National Telecommunications Commission

[6] Raw data retrieved from the Department of Science and Technology-ICT Data and Statistics and

there were 106.7 mobile phones per 100 Filipinos, while internet usage was at 36.24 percent. Meanwhile, fixed broadband subscription was at 2.2 subscribers per 100 Filipinos[7].

Quality of Infrastructure Relative to Those of ASEAN Neighbours

The Philippines lags behind most of its ASEAN neighbours in the quality of its infrastructure. According to the latest Global Competitiveness Report (2012-2013) of the World Economic Forum, the Philippines ranks 98th out of 144 countries in terms of quality of overall infrastructure and is second to the last among the ASEAN countries included in the ranking.

Public Sources of Infrastructure Financing

National Sources

The immense importance of investing in infrastructure development to facilitate inclusive economic growth is recognised by the current administration. The Philippine Development Plan (PDP) 2011-2016 puts high priority on infrastructure development, which has both growth and equity effects. Thus, this section begins with a discussion of the national development priorities contained in the government's investment programme. The discussion then continues with a presentation of how the government financed infrastructure investments for the past five years through the national budget.

National Development Priorities

The current administration is guided by a comprehensive investment plan entitled "Public Investment Programme (PIP) 2011-2016". In 2013, the National Economic Development Authority (NEDA) released a "Revalidated PIP", which incorporates updated data as of May 31, 2012 and shows that infrastructure development has the largest share at US$13.06 billion or 77

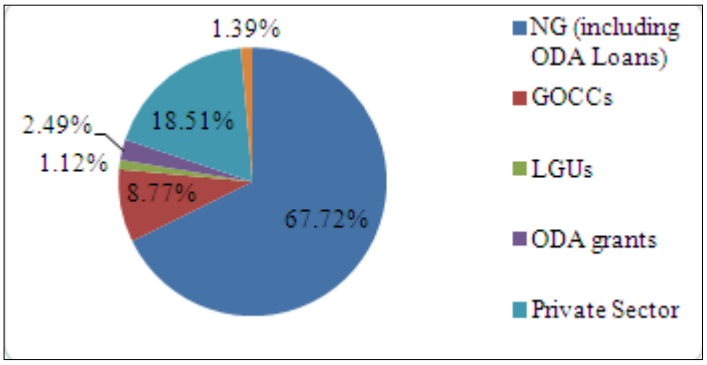
International Telecommunications Union

[7] *Ibid.*

percent of the total amount of target investments in eight key investment areas[8] for the remaining years 2013 to 2016. This amount corresponds to a total of 69 out of the identified 102 core investment projects and programmes. Such is the high priority that the current administration puts on infrastructure development. Annex 1 provides details on the infrastructure investment programme in the PIP.

Infrastructure development in the PIP will be financed for the most part by the national government. Figure 7.2 shows that the national government, aided with official development assistance (ODA) loans, will shoulder 67.72 percent of the 2011-2016 investment programme for infrastructure. Private sector investment ranks second with a 18.51 percent share, followed by investments by government-owned and controlled corporations (GOCCs) at 8.77 percent share.

Figure 7.2: Aggregate Investment Targets by Funding Source (2011-2016)



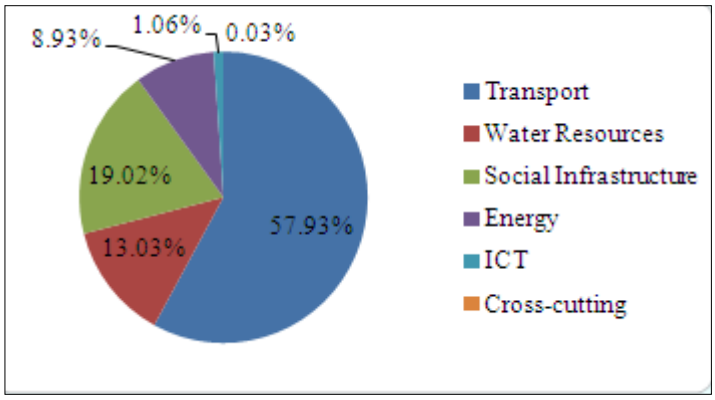
Source of raw data: PIP 2011-2016 (as of 31 May 2012).

In terms of the distribution of investment targets among infrastructure subsectors (Figure 7.3), more than half (57.93%) of the total 2011-2016 infrastructure investment target is for the transport subsector. Specifically, the 2011-2016 PIP assigns US$34.79 billion as the total target amount for the transport subsector; US$11.63 billion for social infrastructure; US$7.96 billion for water resources; US$5.47 billion for energy; and US$0.02 billion for cross-

[8] The eight key areas are infrastructure, industry and services, agriculture and fisheries, financial sector, governance and the rule of law, social development, peace and security, and environment and natural resources.

cutting key programmes and projects.

Figure 7.3. Investment Targets by Infrastructure Subsector, 2011-2016



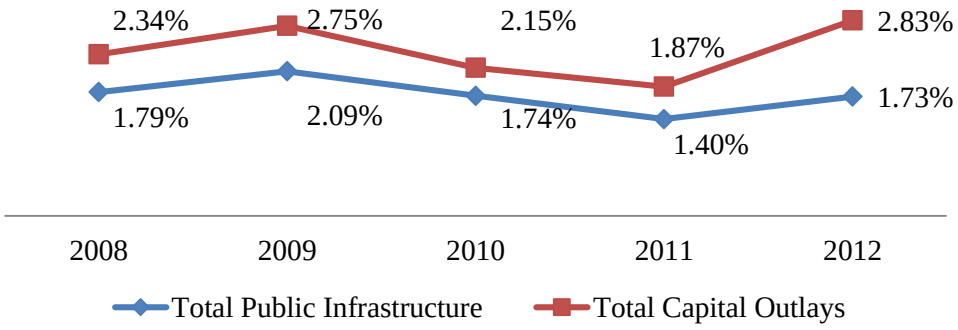
Source of raw data: PIP 2011-2016 (as of 31 May 2012).

Budget Composition

The national government takes pride in the fact that infrastructure spending has been prioritised in 2013. The Department of Budget and Management (DBM) stated that the infrastructure and other capital outlays allocation went up by 17.7 percent, from US$5.98 billion in 2012 to US$7.04 billion in 2013. This is supposedly to support infrastructure projects that are necessary for transport, tourism, and agriculture industries.

The budget for infrastructure and other capital outlays comprises 14.8 percent of the total US$47.48 billion budget in 2013. However, the amount for such budget item that the DBM is monitoring does not go wholly to physical infrastructure that raises total factor productivity, but also to such sub-items as buildings, vehicles, equipment and the like for government units. If actual public infrastructure spending is separated from actual total capital outlays, one sees that in the last five years (2008-2012), public infrastructure spending as part of GDP averaged at 1.4 percent to 2.09 percent only (Figure 7.4). This is a far cry from the current administration's target to raise infrastructure spending to 5 percent of GDP over the medium term.

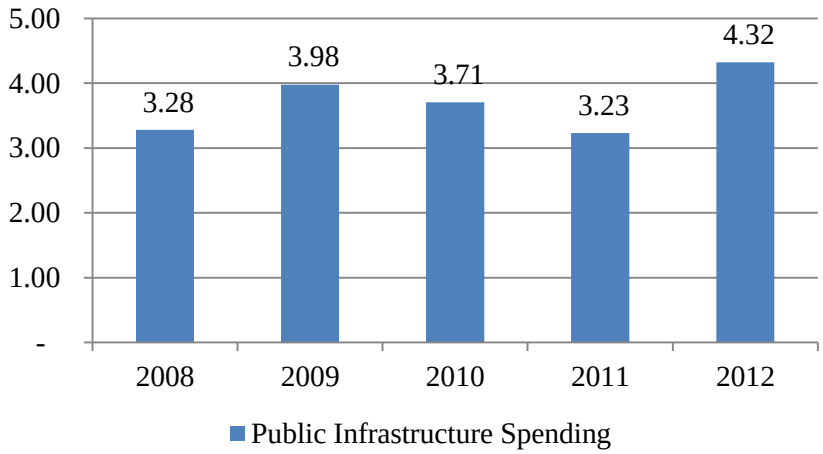
Figure 7.4: Actual Infrastructure and Other Capital Outlays as % of GDP, 2008-2012



Source: DBM National Expenditure Programme CY 2008-2014; PIDS Economic and Social Database.

The last five years also saw serious underspending in infrastructure, which began in 2010 and worsened in 2011 (Figure 7.5). Navarro and Yap (2011) state that the 2011 decrease in government's final consumption expenditure, mostly in infrastructure projects and programmes, cut GDP growth by 0.1 percent (Navarro and Yap, 2012). The executive branch of the government defended the underspending by stating that it was a consequence of the attempt to institute good governance, an important platform of the Aquino administration. The due diligence reviews of projects and programmes conducted in 2010-2011 led to postponement or delays in fund disbursements. Thereafter, an accelerated disbursement programme was instituted and by 2012, public spending on infrastructure has surpassed its 2009 level.

Figure 7.5: Actual Public Infrastructure Spending (in US$ billion), 2008-2012



Source: DBM National Expenditure Programme CY 2008-2014; PIDS Economic and Social Database.

Table 7.A.3 in Annex 1 shows the actual amount of spending of national government agencies for their respective infrastructure-related activities from 2008 to 2012. Note that infrastructure spending by such agencies had been between 11 percent and 13 percent of the national budget in the last five years. The government also has specialised financing agencies for infrastructure development—i.e., the National Electrification Administration (NEA) for electric power infrastructure and the Local Water Utilities Administration (LWUA) for water-related infrastructure. These institutions, unlike government financial institutions, receive yearly subsidies from the government. Table 7.1 and Table 7.2 summarise the grants and loans provided by these two lending agencies for infrastructure-related projects in the past five years.

Table 7.1: Amount of Grants and Loans Availed by Electric Cooperatives, 2008-2012

Year	Grants		Loans	
	(US$ million)	(%)	(US$ million)	(%)
2008	21.84	0.06%	37,865.15	99.94%
2009	11.84	0.03%	40,990.98	99.97%
2010*	1.49	0.0042%	35,781.27	99.99%
2011	45.54	0.14%	32,631.76	99.86%
2012	23.68	0.06%	39,049.18	99.94%

Note: * Used 2007 to 2009 subsidy savings
Source: National Electrification Administration.

Table 7.2: Amount of Loans and Grants Availed by Water Districts, 2008-2012

Year	Grants		Loans	
	(US$ million)	%	(US$ million)	%
2008	0.0011	0.01%	13.45	99.99%
2009	4.41	15.44%	24.15	84.56%
2010	72.97	85.90%	11.98	14.10%
2011	15.62	49.34%	16.03	50.66%
2012	1.67	17.55%	7.85	82.45%

Source: Local Water Utilities Administration.

External Sources

Official Development Assistance

Multiple ODA partners have invested significant amounts of resources in helping the Philippines develop its infrastructure. These resources come in the form of loans and grants. Annex 2 details the developing partners' profiles based on their priority areas, as well as their strategy frameworks for development.

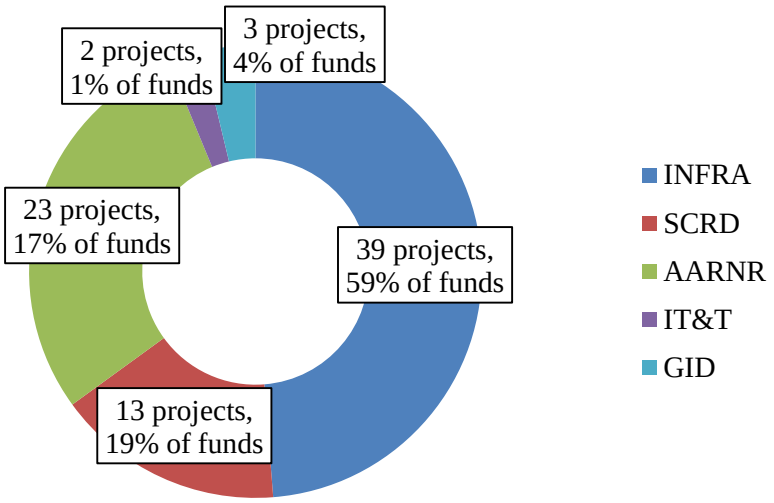
Multilateral agencies have had varying areas of focus: The Asian Development Bank (ADB) historically supported transport, energy, agriculture infrastructure, and water supply projects; the International Fund for Agricultural Development aided infrastructure for agricultural development; the United Nations backed infrastructure that centred on the attainment of the Millennium Development Goals; the World Bank and other funds that it administers focused on transport, water supply, and energy infrastructure. Bilateral aid agencies (i.e., aid

agencies of Australia, China, South Korea, New Zealand, Canada, European Union, France, Spain, and the United States), meanwhile, supported a number of cross-cutting areas such as public-private partnerships, investment-promoting infrastructure, infrastructure support to tourism, and infrastructure for peace and development in Mindanao.

Loans for Infrastructure

As of December 2012, the total loan commitment amounted to US$8.82 billion. Seventy-eight percent (or US$6.89 billion) was for project loans while the remaining 22 percent (or US$1.93 billion) was for programme loans. The total loan commitment in 2012 rose by about 2.6 percent from the registered loan commitment in 2011. Furthermore, of all the loans for 2012, the biggest share went to the development of the infrastructure sector. A total of US$5.19 billion (58%) of the loans was allocated to infrastructure, while 19 percent was for social reform and community development. Given the amount, it is not surprising that the infrastructure sector also had the largest number of projects: 39 projects supported by ODA loans in 2012. Figure 7.6 details the distribution of projects and percentage share by sector in the 2012 net loan commitments.

Figure 7.6: Project Count and Percentage Share of 2012 Total Loan Commitments, by Sector

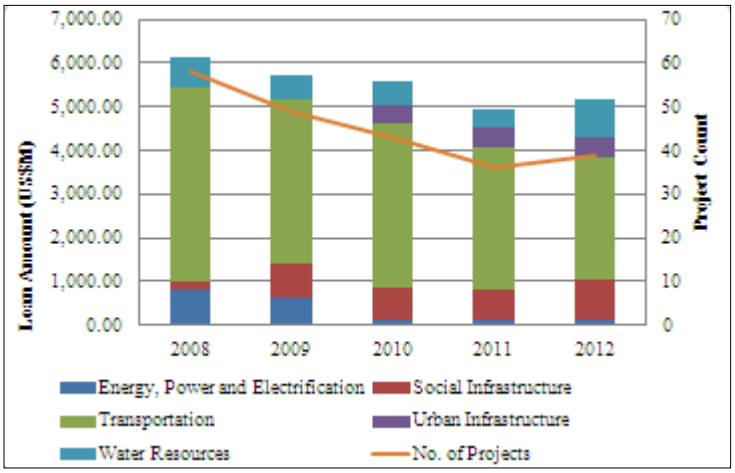


Notes: INFRA - Infrastructure
SCRD - Social Reform and Community Development
AARNR - Agriculture, Natural Resources and Agrarian Reform
IT&T - Industry, Trade, and Tourism
GID - Governance and Institutions Development
Source: 2012 ODA Portfolio Review, NEDA.

The fact that infrastructure has the largest share of the 2012 loans is consistent with the historical data for the past five years. From 2008-2012, ODA partners have constantly focused on infrastructure development in the country. Since 2008, more than 56 percent of the total annual loans has gone to projects for infrastructure development (Table 7.3).

Although the infrastructure sector gets prioritised in ODA assistance over other sectors, a decreasing trend in infrastructure loans can be observed in the past five years, with a slight rebound in 2012 (Figure 7.7). Consequently, the number of projects for infrastructure has also decreased. From a high of 58 projects in 2008, it has dropped to the current project count of 39. Within the infrastructure sector, the transportation subsector has consistently received the highest share of ODA loans.

Figure 7.7. Distribution of Infrastructure Loans by Subsector, 2008-2012



Source: 2008-2012 ODA Annual Portfolio Review

Table 7.3: ODA Loans, by Sector, 2008-2012

Sector	2008		2009		2010		2011		2012	
	Amount (US$M)	% Share	Amount (US$M)	% Share	Amount (US$M)	% Share	Amount (US$M)	% Share	Amount (US$M)	% Share
Agriculture, Natural Resources and Agrarian Reform	1,553.66	15%	1,612.28	17%	1,837.40	18%	1,192.03	14%	1,495.26	17%
Infrastructure	6,130.25	61%	5,741.39	60%	5,591.70	56%	4,950.35	58%	5,185.99	59%
Industry, Trade and Tourism	666.4	7%	470.02	5%	44.86	0%	218.64	3%	115.05	1%
Governance and Institutions Development	732.9	7%	909.19	9%	709.17	7%	32.9	0%	332.4	4%
Social Reform and Community Development	953.68	10%	904.33	9%	1,751.53	18%	2,205.63	26%	1,692.30	19%
Grand Total	**10,036.89**	**100%**	**9,637.21**	**100%**	**9,934.66**	**100%**	**8,599.55**	**100%**	**8,821.00**	**100%**

Source: 2008-2009 ODA Annual Portfolio Review; 2010-2012 NEDA Project Monitoring Staff.

For the past three years, the infrastructure sector has received US$15.72 billion. Among the development partners, Japan has consistently been the top source of funding for infrastructure projects (Table 7.4). In 2012, Japanese ODA accounted for 48 percent, or US$2.48 billion, of the total ODA loan funds allocated for the infrastructure sector. This is followed by French ODA (23%) and the World Bank (15%). As of March 2013, 25 infrastructure projects have been identified in the preliminary ODA pipeline (Annex 2).

Table 7.4: Infrastructure Loan Amount by Development Partner, 2010-2012 (US$ million)

Developing Partner	2010	2011	2012	Total
Japan	2,810.11	2,297.43	2,476.88	7,584.42
France	744.46	721.52	1,181.39	2,647.37
China	1,016.60	1,016.60	297.39	2,330.59
WB	496	485.56	761.99	1,743.55
Korea	206.33	219.62	237.66	663.61
ADB	31.1	31.1	93.1	155.3
Others	287.09	178.52	137.59	603.2

Source: NEDA-Project Monitoring Staff.

Table 7.5. ODA Grants by Sector, 2008-2012 (US$ million)

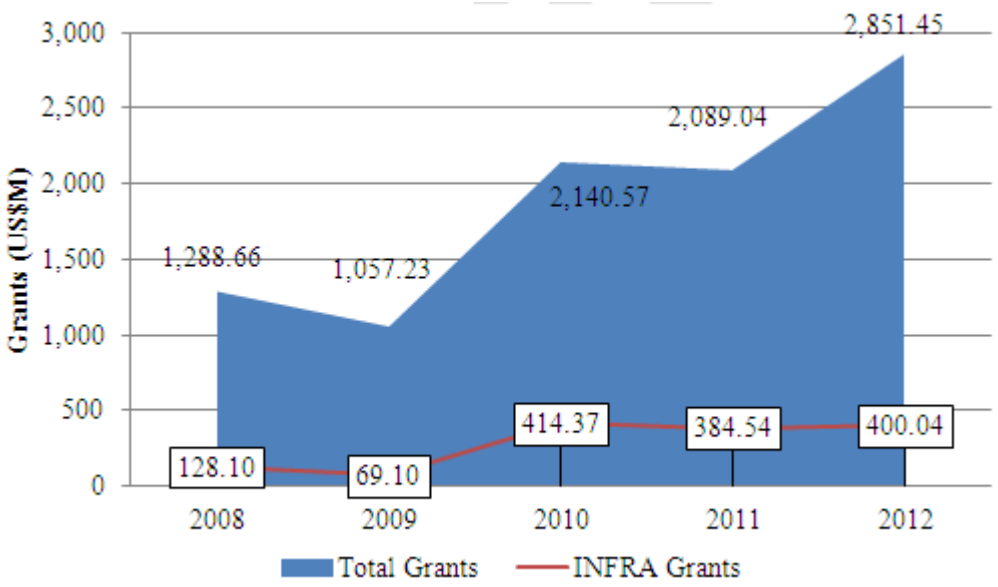
Sector	2008		2009		2010		2011		2012	
	Amount	% Share	Amount	% Share	Amount	% Share	Amount	% Share	Amount	% Share
Social Reform and Community Development	284.82	22%	415.78	39%	931.12	43%	876.41	42%	1,519.40	53%
Governance and Institutions Development	474.13	37%	334.65	32%	400.93	19%	478.95	23%	561.92	20%
Infrastructure	128.10	10%	69.10	7%	414.37	19%	384.54	18%	400.04	14%
Agriculture, Agrarian Reform, and Natural Resources	338.80	26%	192.62	18%	344.55	16%	292.91	14%	314.19	11%
Industry, Trade and Tourism	62.81	5%	45.08	4%	49.60	2%	56.23	3%	55.90	2%
TOTAL	**1,288.66**	**100%**	**1,057.23**	**100%**	**2,140.57**	**100%**	**2,089.04**	**100%**	**2,851.45**	**100%**

Note: Total grant received in 2010 was US$2,247.53 million. An amount of US$106.961 million were tagged as unspecified
Source: 2008-2009 ODA Annual Portfolio Review; 2010-2012 NEDA Project Monitoring Staff.

Grants for Infrastructure

The total ODA grants that the Philippines has been receiving since 2008 is rising. Total grants for all sectors amounted to US$2.86 billion by 2012. Table 7.5 shows the breakdown of the grants received per sector over the past five years. It can also be observed from Table 7.5 and Figure 7.8 that grants specifically for the infrastructure sector show an increasing trend. Compared to the US$128.10 million received in 2008, infrastructure grants in 2012 reached US$400.04 million. The project count, however, had dipped in the past three years—from 95 in 2010, to 29 in 2012.

Figure 7.8: Total Grants vis-a-vis Infrastructure Grants Received, 2008-2012



Consistently, the Millennium Challenge Corporation (MCC), an independent US government foreign aid agency, tops the list of development partners in terms of grants for the Philippines' infrastructure development (Table 7.6). Since 2010, MCC has accounted for 54 percent of the infrastructure grants to the country, followed by Australia (24%), Japan International Coordination Agency (JICA) (7%), and the World Bank (6%).

Table 7.6: Grant Amount by Development Partner, 2010-2012 (in US$ million)

Development Partner	2010	2011	2012	Total
MCA/MCC	214.4	214.4	214.4	643.2
AUSTRALIA	101.87	79.14	104	285.01
JICA	-	47.01	37.04	84.05
WORLD BANK	35.26	20.24	14.07	69.57
ADB	10.21	7.7	14.57	32.48
GTZ/GIZ	31.97	-	-	31.97
USAID	5.5	5.5	5.51	16.51
Others	15.15	10.55	10.45	36.15
No. of projects	95	65	29	189

Source: NEDA-Project Monitoring Staff.

Regional Source – The ASEAN Infrastructure Fund

The ASEAN Infrastructure Fund (AIF) is another possible external source of funding for Philippine infrastructure requirements. This regional fund is initially expected to provide loans of up to US$300 million a year and has a lending commitment through 2020 of up to US$4 billion. It was incorporated in April 2012 with shareholdings from nine ASEAN members (Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam) and the ADB. The Philippines' initial equity contribution was US$15 million. Table 7.7 describes the basic design of the AIF.

Table 7.7: Basic Design and Structure of the ASEAN Infrastructure Fund (AIF)

Equity	Debt	Lending Operations	ADB's Role
• US$335.2 million from 9 ASEAN countries • US$150 million from ADB • Around US$162 million in hybrid capital (perpetual bonds)	• Debt issued to leverage 1.5 times the equity* • High-investment grade credit rating targeted • Central banks and other institutions, including private sector, to purchase the debt after the AIF has established a clear track-record and sufficient lending volume	• Lending to relevant ASEAN countries • Based on ADB's country partnership strategy, and regional pipelines • Initially only on sovereign and sovereign-guaranteed projects and public portion of PPP projects, later also loans to private sponsors after formal determination of the AIF	• Generate the project pipeline • Ensure that appropriate safeguards and due diligence are part of the project design and administration and report to ASEAN • Provide co-financing and act as the lender of record • Administer the AIF (including financial management, loan servicing, accounting and financial reporting) during the project administration and evaluation

Note: *In capital adequacy terms, it means an equity-to-loan ratio of about 60 percent by 2020 and about 44 percent by 2025.

Source: ADB August 2011 Report and Recommendation of the President to the Board of Directors: Proposed Equity Contribution and Administration of ASEAN Infrastructure. Fund.

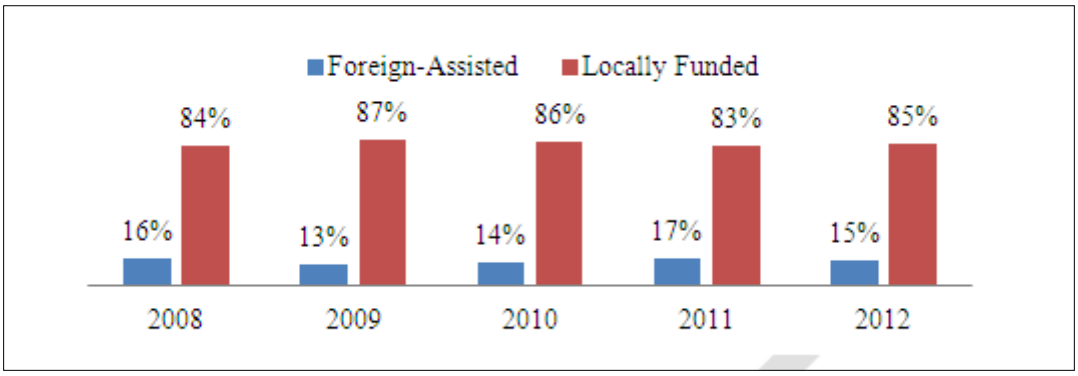
The AIF was reported to be ready to process projects in the pipeline by the second half of 2013. To date, however, details on the projects being processed have not yet been released.

Analysis of the Fiscal Situation

A healthy fiscal system supports the national government's spending on infrastructure projects funded by both local sources and external sources, with the latter usually utilising counterpart government contributions. Figure 7.9 shows that outlays for infrastructure are largely from local funds, which averaged 84 percent to 87 percent in the past five years. On the other hand, the share of foreign assistance stood at 13 percent to 17 percent. The decline in the share of foreign assistance from 17 percent in

2011 to 15 percent in 2012 also signifies the national government's decreasing reliance on ODA for its infrastructure budget. Locally sourced funding has become more sustainable in recent years due to the local economy's positive performance and improvements in the government's revenue generation efforts.

Figure 7.9: Infrastructure Spending by Source of Fund (Foreign-Assisted vs. Locally-Funded Budget), 2008-2012



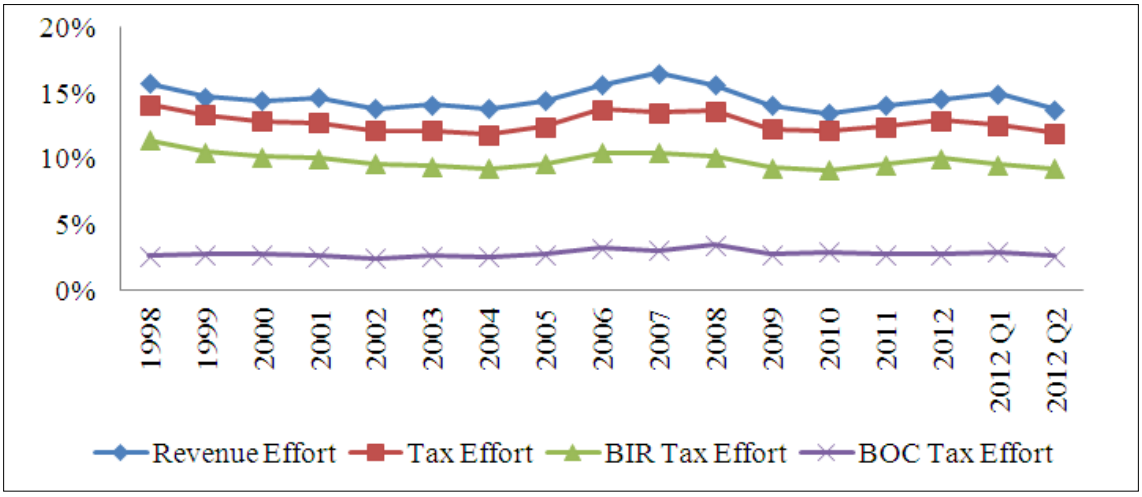
The recent strong performance of the economy (6.6% annual GDP growth in 2012 and 7.8% GDP growth in the first quarter of 2013) indicates a widening fiscal legroom for the national government. The 7.8-percent GDP growth in the first quarter of 2013 is the current administration's third consecutive quarterly growth above 7 percent. According to the National Statistical Coordination Board (NSCB), this can be attributed to the strong performance of the manufacturing and construction sectors, increased government and consumer spending, and sustained inflow of remittances from overseas Filipino workers.

Multilateral institutions also forecast a positive growth outlook for the Philippines. For instance, in July 2013, the World Bank projected the Philippine economy to grow at 6.2 percent for the said year and 6.4 percent in 2014. The International Monetary Fund likewise raised its growth outlook for the Philippines—from the original 6 percent, it amended its forecast in July 2013 to 7 percent by year-end.

Moreover, the Philippines' actual fiscal deficit by December 2012 stood at 2.3 percent of GDP, which is below the government's target cap of 2.6 percent of GDP. Navarro and Yap (2013) explain that compared to the previous year, where fiscal deficit was controlled at the expense of lower government spending, the fiscal deficit in 2012 improved due to the low-interest environment, less pressure on borrowings, faster-than-expected GDP growth, and increase in government revenues. However, Navarro and Yap note that recent revenue collections were still short of targets. The NEDA also raised the revenue effort issue in its *Socio-Economic Report 2010-2012* and stated that despite the country's recent commendable fiscal performance, improvements are still possible given the "path of revenues and spending."

Figure 7.10 presents the trend of the national government revenue effort from 1998 to early 2013 and shows that the Bureau of Internal Revenue (BIR) and Bureau of Customs' (BOC) tax collections, as a percentage of GDP, have recently declined. These agencies cite the challenges they face in collecting taxes as among the reasons for the decline in collections. The BOC representatives usually cite the lower tax base for import duties due to tariff reduction agreements as one big challenge. The BIR representatives, on the other hand, cite tax leakages and evasion. Observers, however, frequently point to corruption as the major reason tax collection targets are not met. The risk posed by such revenue performance on the country's fiscal position drives the current administration to pursue governance reforms in the two tax collecting agencies. At present, the BOC bureaucracy is being revamped, while a customs modernisation bill is in the legislative agenda. The BIR is also implementing stricter procedures to be able to cover tax evaders in its collection base.

Figure 7.10: Revenue and Tax Efforts (% of GDP), 1998-2013 Q1 GDP (Base Year 2000)



The current low-interest environment presents opportunities for the Philippines to manage its fiscal position well. The investment grade rating the country received from major rating agencies—first from Fitch Ratings in March 2013, and second from Standard & Poor's in May 2013—may attract more investments and improve macroeconomic performance. [9] Given these current developments, the government's policy is to lessen its dependence on foreign borrowings and instead turn to the local debt market for its borrowing needs. Macroeconomic assumptions for the 2013 budget include targeting a national government borrowing mix of 75 percent local and 25 percent foreign, although the Department of Finance announced in early 2013 that it might consider an 80:20 mix in favour of the local currency.

Improvements in infrastructure spending are also expected to occur given that the proposed 2014 national budget of US$53.71 billion is 13 percent higher than 2013's US$47.50 billion. The US$6.21 billion was reportedly added to achieve "increased investments in infrastructure, in good governance and anti-corruption, in building human capabilities especially

[9] At the time of this study, the government was also waiting for the credit rating of Moody's Investors Service, which visited the country in late July 2013 for an examination of the Philippine economy and a review of the country rating.

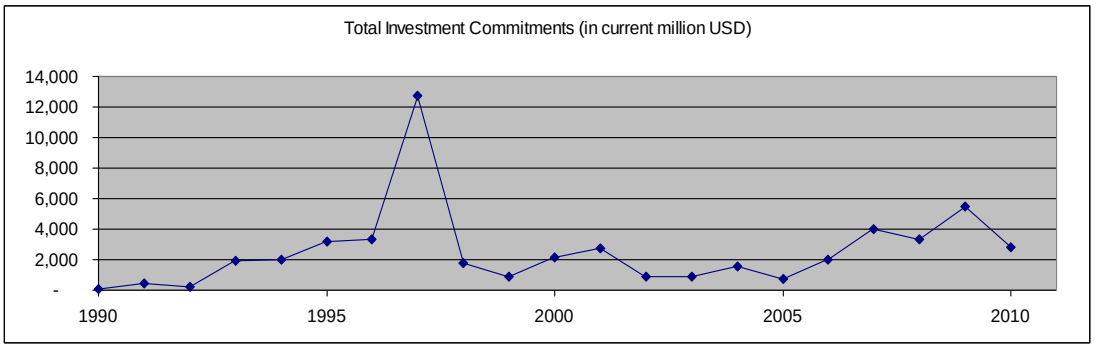
of the poor, through quality education, public health care and housing, and in climate change adaptation measures" (Diaz, 2013).

Public-Private Partnerships and the Capital Market

PPPs in Infrastructure

Public-private partnership (PPP) as an investment strategy was promoted in 1990, when the country was reeling from an electric power shortage. At that time, however, it was called build-operate-transfer (BOT) and its variants. The PPPs steadily increased in the 1990s but drastically declined after the East Asian currency crisis. It continued to drop during the first half of the Arroyo administration as most infrastructure projects were financed via ODA, and increased again beginning the mid-2000s (Navarro, 2012). Figure 7.11 below shows the path that PPPs took during the last two decades.

Figure 7.11: Total PPP Investments Committed in the Philippines, 1990-2010 (in US$ million)



Source: World Bank - Private Participation in Infrastructure Database

Regulatory Framework for PPPs

The regulatory framework for PPPs evolved from the first PPP law, the Republic Act (RA) 6957 entitled "An Act Authorizing the Financing, Construction, Operation and Maintenance of Infrastructure Projects by the Private Sector" and passed in 1990. In 1994, this was amended by RA 7718. At present, RA 7718 and its implementing rules and regulations (IRR) provide the framework and procedures for the competitive tender and government support for the following contractual arrangements: build-operate-transfer, build-transfer, build-own-operate, build-lease-transfer, build-transfer-operate, contract-add-operate, develop-operate-transfer, rehabilitate-operate-transfer, and rehabilitate-own-operate. Other variations of these contractual arrangements need to be approved by the president of the Philippines.

There are two modes of competition in the Philippine PPP framework—the solicited proposal process and the unsolicited proposal process. The solicited mode is the regular tendering process where a government unit prepares the project feasibility analysis and solicits competitive proposals from the private sector to undertake the project. In the unsolicited mode, a government unit may accept an unsolicited proposal from a private firm under three conditions: (1) The proposed project involves a new concept or technology and/or is not part of the government's list of priority projects; (2) No direct government guarantee, subsidy, or equity is required; and (3) The government unit has invited comparative or competitive proposals and no other proposal came in.

Joint ventures between government corporations and private entities must also follow a competitive process. The Joint Venture Guidelines issued by the NEDA in 2008 and revised in 2013 provide the rules and procedures for the competitive selection of private joint venture partners. Under the guidelines, the private sector can entirely take over a joint venture project after the government divests itself of any interest in such.

The existing regulators in infrastructure sectors also provide sector-specific regulatory rules, such as those relating to prices, routes, standards or operating parameters. These regulators include the Toll Regulatory

Board, Maritime Industry Authority, Energy Regulatory Commission, Civil Aviation Authority of the Philippines, and National Water Resources Board.

Operational and Proposed PPPs

As of December 2012, about 35 operational projects in the Philippines valued at US$15.86 billion were undertaken under the framework provided by RA 7718, the PPP law. Table 7.8 shows the sector distribution of these projects.

When the current administration revived the PPP programme in 2010, 10 projects were identified as priority projects and promoted to the private sector. However, only three projects[10] have been awarded to date. As of July 2013, the PPP programme consists of 20 projects with a worth of US$6.47 billion (Table 7.9).

[10] These three projects are the PHP1.96-billion (US$0.05 billion) Daang Hari-South Luzon Expressway Link, the PHP16.42-billion (US$0.39 billion) School Infrastructure Project Phase I, and the PHP15.86-billion (US$0.38) Ninoy Aquino International Airport Expressway (NAIA) Phase II.

Table 7.8: Operational PPP Projects by Sector (as of December 2012)

Sector	Scheme	Number of Projects	Estimated Cost in (US$ Million)
Power Sector	BOT-PPA	3	1,534.00
	BOO	1	22.00
	JV	1	5.00
	BROT	1	450.00
	BOO-ECA	2	170.00
	BOT-ECA	3	3,048.00
	Subtotal	11	5,229.00
Transport Sector	BLT	1	655.00
	JV	4	1,398.00
	BOT	1	84.00
	BTO	1	53.00
	Subtotal	7	2,190.00
Information Technology Sector	BTO	1	65.00
	BOO	1	82.00
	BOT	1	2.80
	Subtotal	3	149.80
Water Sector	CAOM	1	7,000.00
	JV	2	134.40
	BOT	1	650.00
	CA	1	55.00
	Subtotal	5	7,839.40
Property Development Sector	BOT	4	7.86
	BT/BOT	1	4.00
	DOT/BT	1	23.00
	JV	2	415.00
	Subtotal	8	449.86
Health Sector	PSP - Lease Contract	1	1.00
	Subtotal	1	1.00
GRAND TOTAL		**35**	**15,859.06**

Source: Public-Private Partnership Center.

Table 7.9: PPP Project Pipeline (as of July 2013)

Sector	Number of Projects	Amount (US$ Million)
Transport	11	4,804
Water and Sanitation	2	1,071
Energy	1	38
Social Infrastructure	3	369
Logistics and Supply Chain	3	191
Total	**20**	**6,473**

Source: Public-Private Partnership Center.

Capital Market in the Philippines

Level of Development of the Capital Market

The Philippine capital market offers a wide range of financial instruments. The government from time to time issues peso-denominated treasury notes, bills and bonds, and foreign currency-denominated bonds to institutional investors as well as peso-denominated treasury bonds and multi-currency treasury bonds to retail investors. Retail investors can also indirectly invest in treasury bills through trust agreements with banks. Private corporations have issued notes and bonds, as did some government corporations in the past. Banks also issue long-term negotiable certificate of deposits and tier 2 notes.

The size of the local bond market, as measured by the total amount outstanding, is US$99 billion as of the first quarter of 2013 (ADB, 2013). Of this amount, US$86 billion are government bonds and US$13 billion are corporate bonds. The size of the banking sector, on the other hand, is US$247.46 billion as of end-2012 (BSP, 2013a). The total Philippine stock market capitalisation as of June 2013 is US$0.28 trillion (BSP, 2013b). Equities are traded in the Philippine Stock Exchange, while debt trading is done in the Philippine Dealing Exchange.

The Philippines received sovereign credit ratings of BBB- with a stable outlook from Fitch Ratings on 27 March 2013, and BBB- with a stable outlook from Standard and Poor's on 2 May 2013. The local credit rating

agency for commercial papers is the Philippine Rating Services Corporation (PhilRatings).

Infrastructure financing activities in the local capital market currently include loan syndication or club financing by banks, and corporate bond issuances of holding companies with infrastructure exposure. To date, no specific infrastructure bonds have been issued for direct and fresh financing.

A New Private Equity Fund Co-financed by Pension Funds

The newly created Philippine Investment Alliance for Infrastructure (PINAI) Fund is another source of financing for Philippine infrastructure projects. The PINAI Fund is a private equity fund co-financed by pension funds and the ADB. It is capitalised at US$625 million, where the Government Service and Insurance System (GSIS), the Philippines' pension fund for government workers, contributed the largest equity share at 64 percent. The other equity contributors are: Agemene Pensioen Groep, a pension fund based in Netherlands, at 24 percent; Macquarie Infrastructure and Real Assets, which is owned by the Macquarie Group, at 8 percent; and the ADB at 4 percent. Recently, a private firm pursuing an 81-MW wind power project for the northern part of the Philippines expressed interest in tapping the fund (ADB, 2013a).

Challenges in PPPs and Opportunities in the Local Capital Market

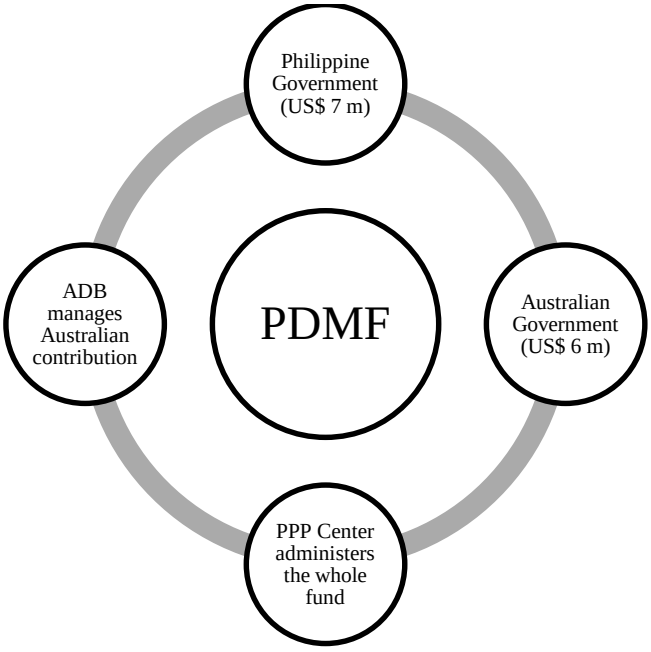
Despite the long history of Philippine PPPs, challenges remain. These include delays in rolling out projects for tender and the current PPP law's (RA 7718) inadequacy in dealing with competition and implementation problems.

Issues that gave rise to delays in the tendering process include the weakened capacity of government units to process PPPs and the lack of a prudent project development to support the PPP proposals. To address the capacity issue, capacity-building activities are being conducted for the

main agency in charge of the PPP programme (i.e., the Public-Private Partnership Center) as well as government implementing units and oversight agencies. To address project quality-at-entry, a Project Development and Monitoring Facility (PDMF) has been established.

The PDMF is a revolving fund (Figure 7.12) for the preparation of pre-feasibility and feasibility studies, and tender documents for PPP projects, and assistance in the bidding process. The fund revolves as the project development cost, including an administrative fee of 10 percent, is recovered from the successful bidder. In case the bidding fails due to reasons that are within the implementing government agency's responsibility, such agency refunds the full project development cost. If the bidding failure is due to reasons beyond the agency's control, the latter refunds only 50 percent of the cost.

Figure 7.12: Project Development and Monitoring Facility for PPP Projects



Source: Authors' interpretation of PPP Center documents.

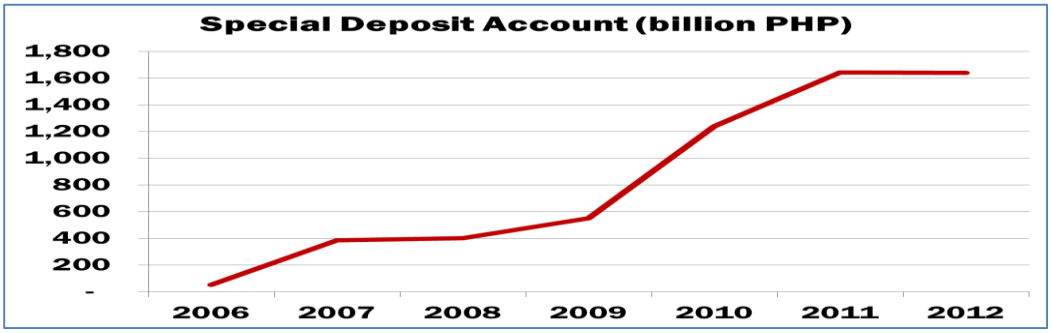
The initial fund for the PDMF was pooled from the contributions of the Philippine government (US$7 million) and the government of Australia (US$6 million). The ADB manages the Australian contribution under its Capacity Building Technical Assistance project for the PPP Center. The PPP Center, on the other hand, administers the whole fund and reviews proposals for PDMF funding.

The inadequacy of the PPP law in dealing with competition and implementation problems and the need to amend RA 7718 have both been raised several times in the past. Llanto (2010) explains that the PPP law (or "BOT law" as referred to in the study) should provide the enabling policy framework while the IRR should provide the technical and operational rules. However, as Llanto has argued, the Philippine PPP law contains both the enabling policy framework and too many details that should have been in the IRR instead, leaving the government with less flexibility to change these details in order to conform to the dynamic nature of such factors as technology and financial markets. At present, the call for amendment of the PPP law is still alive and being raised from time to time by the private sector.

Recent developments in the capital market also present opportunities for accelerating private sector participation in infrastructure investments. Liquidity in the banking system has been growing, and interest rates have been declining. Figure 7.13 shows that special deposit accounts, the main instrument of the Bangko Sentral ng Pilipinas (BSP) in mopping up excess liquidity in the financial sector, has dramatically grown and reached US$38.84 billion in end-2012.[11] Figure 7.14 shows the decline in reference interest rates across all maturities as of December 2012, which is actually a continuation of a general decline since 2009. The challenge now for the private sector is how to take advantage of these positive developments. Meanwhile, the challenge for the government is how to be facilitative in channelling capital market resources to PPP projects.

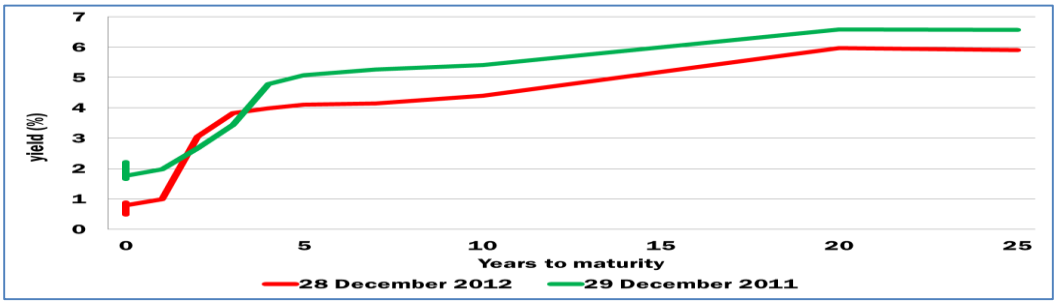
[11] The special deposit accounts, which allow banks and retail investors to park their excess liquidity at the BSP and earn above-market rates, however, will be phased out by the BSP in November 2013.

Figure 7.13: Rapid Growth of Special Deposit Accounts



Source of raw data: Bangko Sentral ng Pilipinas.

Figure 7.14: Declining Benchmark Treasury Rates



Source of raw data: Philippine Dealing Exchange.

The Philippines and ASEAN Connectivity

The Philippines remains committed to ASEAN connectivity. In fact, in the Philippine Development Plan 2011-2016, which is the government's blueprint for economic development during the current administration, the strategy for the transport sector includes "exploring ASEAN connectivity through sea linkages." The Philippines' contribution to the trans-ASEAN power grid and trans-ASEAN natural gas pipeline network is reckoned to be in the last leg of the ASEAN connectivity and envisioned to happen in 2020.

In the Master Plan on ASEAN Connectivity, one of the goals under maritime transport is to bridge archipelagic ASEAN with mainland ASEAN through a RORO and short sea shipping network. Major ports in

ASEAN countries, including the Philippines, were designated to be part of the network. The coordinator and centre of this effort in the Philippines is the Maritime Industry Authority (MARINA)[12], the regulator for the domestic shipping industry.

According to MARINA, the JICA-funded study on ASEAN RORO and short sea shipping network has just been completed in March 2013. Although four Philippine ports (Brooke's Point, Palawan; Zamboanga City; General Santos City; and Davao City) were initially considered in the study, only the Davao City-General Santos City connection was found to be viable. General Santos City was recommended as the main gateway via a connection to Bitung, Indonesia (Figure 7.15). Across ASEAN, the study identified three priority routes to be developed: Dumai (Indonesia)-Malacca (Malaysia) Route; Belawan (Indonesia)-Penang (Malaysia)-Phuket (Thailand) Route; and Davao/General Santos (Philippines)-Bitung (Indonesia) Route.

Figure 7.15: Davao/General Santos (Philippines) – Bitung (Indonesia) Route

Note : Distance:
Davao – Gen. Santos: 154 nautical miles (285 km)
Gen. Santos – Bitung: 302 nautical miles (560 km)
Source: JICA (2013). Masterplan and Feasibility Study on the Establishment of an ASEAN RORO Shipping Network and Short Sea Shipping.

[12] Interview with MARINA, 2 August 2013.

In the trans-ASEAN power grid, the Philippines-Sabah (Malaysia) grid interconnection is targeted to be in the last leg of the connectivity efforts. The Philippine coordinator for the trans-ASEAN power grid is the National Power Corporation through its membership in the Heads of ASEAN Power Utilities/Authorities (HAPUA) [13]. At present, the challenge for the Philippines is to achieve interconnection within the country itself since the Mindanao grid remains isolated from the interconnected Luzon-Visayas grid. For the meantime, the Philippines, through its chairmanship of the HAPUA working group on policy studies and commercial development, contributes to efforts to harmonise rules and standards within ASEAN, such as in the two ongoing HAPUA studies; namely, the study on energy taxation and the study on PPPs for transmission and generation.

The trans-ASEAN natural gas pipeline network is one connectivity infrastructure in the ASEAN wherein the development activities have endured long delays and uncertainties. One major reason is the issue over the commercial viability of the East Natuna (Indonesia) gas field. That is, there is a high cost involved in developing this field. It has a total of 46 trillion cubic feet of proven reserves but is found to have high levels of carbon dioxide (Global Association of Risk Professionals, 2013). For the meantime, the Philippines is preparing to enhance its gas distribution network through the Batangas-Manila pipeline (Batman 1), Bataan-Manila (Batman 2) pipeline, and Batangas-Cavite (Batcave) spur line of Batman 2. Batman 1, Batman 2, and Batcave are envisioned to put in place a total of 423 km of gas distribution lines.

Summary of Key Findings and Conclusions

This study assessed the sources and levels of infrastructure financing in the Philippines for the last five years (2008-2012). So as to provide context,

[13] Interview with the HAPUA Chairperson of Working Group on Policy Studies and Commercial Development, 23 July 2013.

the assessment is preceded by a brief overview of the infrastructure situation in the country.

Clearly, there had been underinvestment in infrastructure. Public infrastructure spending as a share of GDP averaged at only 1.40 percent to 2.09 percent in 2008-2012, which is a far cry from the current target of 5 percent of GDP over the medium term. As a result of underinvestment, the infrastructure stocks and levels of access in the Philippines are low. Moreover, the country has lagged behind most of its ASEAN neighbours in upgrading the quality of its infrastructure.

The national budget for the past five years shows that actual infrastructure spending as a share of the appropriated budget was 11 percent in 2008, 13 percent in 2009, and 11 percent again in 2010-2012. Government underspending in infrastructure is more visible when one looks at levels: Public infrastructure spending dropped from US$3.98 billion in 2009 to US$3.71 billion in 2010, and dipped further to US$3.23 billion in 2011 before it started to increase in 2012 as a result of the government's disbursement acceleration programme.

As external sources of financing, ODA partners have historically prioritised infrastructure financing. However, in the past five years, the country has been decreasing its reliance on ODA loans for infrastructure financing. These loans declined from a high of US$6.13 billion for 58 projects in 2008 to US$5.19 billion for 39 projects in 2012.

This study likewise took stock of PPPs in the Philippines and found that there are currently 35 operational PPP projects worth US$15.86 billion while the PPP pipeline consists of 20 proposed projects estimated to cost US$6.47 billion. The current PPP programme has encountered delays in the tendering process due to the weak capacity of government units to ensure project quality-at-entry and efficiency in the processing of PPPs.

The inadequacy of the PPP law in dealing with competition and implementation problems is also a key challenge; thus, the call to amend the law persists. The pressing need to address these challenges is all the more magnified by the opportunity presented by the currently liquid capital market and the low interest rate environment—an opportunity to

invest in infrastructure with the help of the private sector that should not be missed by the current administration.

This study also provides updates on the Philippines' participation in building the physical connectivity of the ASEAN through infrastructure. The feasibility study for the strategy of bridging archipelagic ASEAN with mainland ASEAN through a RORO and short sea shipping network was finished recently. Although four Philippine ports were initially considered in the study, only two ports were found to be viable—Davao City and General Santos City, with General Santos City acting as the main gateway via a connection to Bitung, Indonesia.

In the review of the sources of infrastructure financing, this study has uncovered a positive outlook for the Philippine government's fiscal health as well as the opportunities presented by new sources such a regional fund for ASEAN and a private equity fund capitalised with pension funds. However, based on recent experience, it is not really the availability of financial resources that is primarily restraining infrastructure development in the Philippines but the pace at which investments are being pursued. While the ODA had been relied on less and less and the fiscal position of the government had improved, there had been underspending in programmes and projects as the government focused instead on due diligence reviews and governance reforms. The PPP programme was revitalised and given much attention but delivered short on its promise due to delays in the tendering process, which in turn, were due to insufficient bankable projects.

The important lesson from all these is that an effective infrastructure financing strategy must not only focus on resource availability for the hard infrastructure but also on means to facilitate the way projects are identified, designed, proposed, reviewed, and implemented. In short, the resource and institutional requirements for project development, capacity building, and governance reforms must also be considered. Project development facilities need to be expanded in scale and scope to cover not only project development studies but also studies on reforms needed to make the complex wheels of the government evaluation machinery run more efficiently and local commercial partners act on opportunities more

quickly. This is an important lesson not only for the Philippines but also for the whole ASEAN region given that there is a seemingly lack of an ASEAN strategy to institutionalise project development facilities for infrastructure.

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Annex 1 – Infrastructure in the 2011-2016 Public Investment Programme

The following tables provide details on the investment targets for infrastructure as listed in the 2011-2016 Public Investment Programme.

Table 7.A.1: Investment Target for Infrastructure by Funding Source (in PHP million)

Funding Source	2011	2012	2013	2014	2015	2016	Total
NG (includes ODA	156,244.77	230,440.10	296,778.14	312,982.89	369,222.46	382,992.18	1,748,660.53
loans)	8,015.85	13,359.66	12,314.26	10,336.30	11,515.35	8,643.39	64,184.79
ODA Grants	18,842.62	23,665.31	77,294.86	31,127.02	41,450.52	33,992.07	226,372.40
GOCC	3,083.77	24,197.68	65,789.67	145,781.34	150,337.16	88,640.95	477,830.57
Private Sector	4,328.13	9,751.90	12,509.31	2,400.00	-	-	28,989.34
LGU	1,100.00	4,802.00	9,166.98	8,874.35	11,268.12	805.00	36,016.45
Others	191,615.13	306,216.65	473,853.21	511,501.89	583,793.61	515,073.59	2,582,054.08

Source: PIP 2011-2016 (as of May 31, 2012).

Table 7.A.2: Investment Targets Agency/Department

Agency/Department (attached agencies)	2011	2012	2013	2014	2015	2016	Total
AFAB*	30.00	45.50	30.00	30.00	30.00	30.00	195.50
BCDA*	-	717.50	526.94	210.63	26,200.00	2.24	26,917.50
CDC*	13,000.00	-	2,154.58	5.00	33.54	75.00	13,000.00
PPMC*	1,200.00	4,500.00	191.20	154.28	75.00	1,850.66	5,700.00
BIR	18.99	1,194.61	100.00	100.00	100.00	7,484.08	1,986.94
CEZA	1,334.90	1,306.71	368.25	1,494.01	1,762.51	25,433.47	4,951.19
DAR	-	115.04	3,544.21	3,346.24	7,290.97	3,315.45	460.52
DFA	-	-	8,377.00	9,000.00	10,064.00	80.42	300.00
DILG	68.36	784.43	60,867.42	25,433.47	25,433.47	175.99	6,328.21
DOE	500.78	2,272.20	6,538.66	6,134.43	3,250.94	800.00	24,438.48
NEA	1,333.00	5,000.00	93.87	109.64	96.78	97.80	33,774.00
PNOC	1,352.86	9,050.77	248.20	141.38	157.11	400.00	147,571.45
NPC	263.98	1,903.41	800.00	800.00	800.00	400.00	21,406.87
DOST**	86.47	127.79	85.53	67.92	81.50	7,425.66	594.97
ASTI	351.35	524.44	56.60	400.00	400.00	10,496.00	1,598.48
ICTO	-	1,393.50	200.00	400.00	400.00	25,671.86	4,593.50
PAGASA	2,515.06	136.48	400.00	22,024.95	14,321.60	800.00	2,737.07
PCIEERD	-	55.50	16,981.15	444.00	16,684.95	550.00	359.33
PHIVOLCS*	15.00	69.50	11,045.90	15,426.54	470.00	30.00	15.00
MIRDC	54.25	200.00	418.00	800.00	25,244.71	2.24	1,523.75
DOTC	100.00	9,590.55	10,140.91	2,702.00	800.00	75.00	1,900.00
CAAP	6,957.88	609.70	800.00	681.16	279.50	1,850.66	77,301.79
CIAC*	-	972.00	3,296.00	3,150.00	187.06	7,484.08	28,340.55
CPA*	341.00	13,203.23	1,071.07	30.00	2,917.00	25,433.47	13,141.00
LRTA	3,868.15	800.00	4,089.25	210.63	30.00	3,315.45	93,555.40
LTO	-	841.50	30.00	5.00	26,200.00	80.42	4,000.00
MCIAA*	547.00	3,812.00	526.94	154.28	33.54	175.99	7,666.00
MIAA	341.40	4,618.30	2,154.58	100.00	75.00	800.00	6,092.69
PCG*	2,067.20	1,903.41	191.20	1,494.01	100.00	97.80	17,391.75
PNR	2,377.00	3,152.65	4,617.38	40,016.00	79,483.87	78,620.00	208,266.90
PPA*	2,607.19	2,939.74	10,426.67	8,739.52	16,103.09	8,609.05	49,425.27
MRT3*	6,923.00	4,290.00	5,401.00	5,838.00	5,859.00	6,068.00	34,379.00
DepEd	22,335.60	30,339.09	65,676.87	22,983.54	17,885.65	63,251.30	222,472.06

Agency/Department (attached agencies)	2011	2012	2013	2014	2015	2016	Total
DOH	7,143.91	26,800.00	43,000.00	40,300.00	4,600.00	-	121,843.91
DPWH	94,318.40	110,386.78	140,107.15	218,320.91	232,415.25	185,438.34	980,986.83
MWSS	250.00	3,500.00	6,129.25	7,376.77	10,326.77	2,267.12	29,849.91
DTI	-	-	100.00	35.00	-	-	135.00
LLDA*	-	-	-	-	-	11,500.00	11,500.00
LWUA	-	1,031.00	2,657.00	4,239.00	4,056.00	4,156.00	16,139.00
MMDA	-	2,919.02	6,078.53	5,748.22	4,448.52	4,423.52	23,617.81
NIA	12,790.65	30,000.00	28,361.26	30,610.26	29,722.41	23,958.74	155,443.31
NWRB	4.34	38.73	14.80	30.00	14.80	30.00	132.67
NEDA	98.93	113.77	178.52	178.63	108.95	69.75	748.55
PhilPost*	0.53	0.53	1.05	1.05	1.05	1.05	5.25
PCOO*-PTNI	26.94	231.68	-	1,796.34	3,592.69	3,592.69	9,240.34
PRRC*	-	15.00	105.00	70.00	-	-	190.00
DOTC & LGU	303.00	541.50	2,875.00	2,875.00	3,250.00	3,375.00	13,219.50
DILG, DOH & LWUA	20.00	800.00	1,500.00	1,500.00	1,500.00	1,500.00	6,820.00
HUDCC* & NHA	4,588.00	20,617.00	22,649.00	26,238.00	29,846.00	30,554.00	134,492.00
DepEd & DPWH	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	6,000.00
DepEd & NDRRMC*	480.00	550.00	550.00	550.00	550.00	550.00	3,230.00
LTO & LTFRB	-	3,105.53	-	-	1,948.93	1,020.41	6,074.87
Total	191,615.13	306,216.65	473,853.21	511,501.89	583,793.61	515,073.59	2,582,054.08

Notes: * AFAB - Authority of the Freeport Area of Bataan; BCDA - Bases Conversion Development Authority; CDC - Clark Development Corporation; PPMC - Poro Point Management Corporation; PHIVOLCS - Philippine Institute of Volcanology and Seismology; CIAC - Clark International Airport Corporation; CPA - Cebu Port Authority; MCIAA - Mactan Cebu International Airport Authority; PCG - Philippine Coast Guard; PPA - Philippine Ports Authority; MRT3 - Metro Rail Transit 3; LLDA - Laguna Lake Development Authority; PhilPost - Philippine Postal Corporation; PCOO - Presidential Communications Operations Office; PRRC - Pasig River Rehabilitation Commission; HUDCC - Housing and Urban Development Coordinating Council; NDRRMC - National Disaster Risk Reduction and Management Council.

Source: PIP 2011-2016 (as of 31 May 2012).

Table 7.A.3: List of Infrastructure Projects in the Revalidated PIP[14]

Title of Project	Agency	Expected Outputs/Description	Spatial Coverage	2013-2016 Investment Targets (in PHP Million)
DOT - DPWH Convergence Programme for Tourism Areas Access Provision	DPWH, DOT	Roads leading to tourist destinations constructed/improved	Interregional	-
Upgrading of the San Fernando Airport	BCDA-PPMC	Existing airport improved	I	-
Bicol International Airport Development	DOTC	New airport constructed	V	1,478.02
Puerto Princesa Airport	DOTC	Existing airport improved	IV-B	3,194.00
New Bohol (Panglao) Airport Development Project	DOTC	New airport constructed	VII	6,905.07
Clark International Airport - New Low Cost Carrier Terminal	DOTC-CIAC	New passenger terminal constructed	III	6,242.71
Construction of the New Passenger International Terminal at Mactan-Cebu International Airport	DOTC-MCIAA	New passenger terminal constructed	VII	8,873.10
Tacloban Airport Redevelopment Project	DOTC-CAAP	Existing airport improved	VIII	1,920.00
Manila-Clark Airport Express Rail Link, including JICA TA for FS	DOTC-NLRC	Express rail link connecting Clark to Metro Manila	NCR, III	91,060.00

[14] This is from the May 31, 2012 revalidation of the original Public Investment Programme (PIP) 2011-2016. The National Economic and Development Authority says that one of the salient features of the revalidated PIP is that it "veers away from the identification of all priority programmes and projects of the government and focuses on strategic core investment programmes/projects that will substantially contribute to the priorities embodied in the development objectives in the Philippine Development Plan and the critical indicators in results monitoring."

Title of Project	Agency	Expected Outputs/Description	Spatial Coverage	2013-2016 Investment Targets (in PHP Million)
Central Spine RORO Development	DOTC	Facilities for RORO ferry port network and services installed	IV-A, VI, VII, X	33,780.00
Development of New Cebu International Port (Phase 1) - Construction of a New International Port outside Cebu Baseport (Phase 1)	DOTC-CPA	3-Berth International Container Terminal constructed	VII	10,000.00
Integrated Railway System	DOTC-PNR	A railway system that will serve as a North-South Transportation Backbone constructed	Interregional	-
Construction/Rehabilitation of Farm-to-Mill Roads	DA-SRA	Existing road network upgraded/ rehabilitated and new roads constructed	II, III, IV-A, V, VI, VII, VIII, X, XI, XII	3,300.00
Central Luzon Link Expressway (CLLEX), Phase I	DPWH	30.70 km Expressway constructed	III	14,936.00
Cavite-Laguna (CALA) Expressway	DPWH	47.00 km expressway constructed	IV-A	31,158.68
Calamba-Los Baños Toll Expressway	DPWH	15.50 km expressway constructed	IV-A	8,210.00
Southern Tagalog Arterial Road (STAR) Stage 2 (Phase II)	DPWH	19.74 km expressway improved	IV-A	-
C-6 Expressway and Global Link (South Section)	DPWH	59.50 km expressway constructed	NCR	48,580.00
C-6 Extension (Flood Control Dike Expressway)	DPWH	43.60 km expressway constructed	NCR, IV-A	18,590.00
Modernisation of Kennon Road	BCDA	41.2 km road upgraded to tollway standard	CAR, I	-
Arterial Road Bypass Project Phase II, Plaridel Bypass Road	DPWH	9.96 km road constructed	III	3,341.00

Title of Project	Agency	Expected Outputs/Description	Spatial Coverage	2013-2016 Investment Targets (in PHP Million)
Project				
Samar Pacific Coastal Road Project	DPWH	14.87 km road improved	VIII	1,031.92
Baler-Casiguran Road Project	DPWH	33.00 km of road, 285lm of bridges, drainage structure and road safety facilities (Links Baler to Casiguran) constructed/improved	III	1,470.44
Albay West Coast Road	DPWH	42.90 km road constructed	V	811.18
Dalton Pass East Alignment	DPWH	60.45 km road constructed	III	928.95
Bridges under Design and Build	DPWH	18,843 km bridges constructed	Nationwide	19,855.00
EDSA-Taft Flyover	DPWH	4-lane flyover constructed	NCR	3,033.31
Metro Manila Interchange Construction Project	DPWH	7 interchanges constructed	NCR	6,105.00
Rehabilitation of EDSA (C-4)	DPWH	23 km road improved	NCR	3,744.00
Metro Manila Skybridge	MMDA	8.50 km elevated road	NCR	10,000.00
LRT Line 1 Cavite Extension including JICA TA for FS	DOTC-LRTA	System extended by 11.70 km	NCR, IV-A	56,203.25
LRT Line 2 East Extension, including JICA TA for FS	DOTC-LRTA	System extended by 4.12 km	NCR	9,445.96
MRT 3 Capacity Expansion	DOTC-MRT 3	48 Light Rail Vehicles (LRV) procured	NCR	4,500.00
Manila Bus Rapid Transit (BRT)	DOTC	Organised BRT system operationalised	NCR	-
Line 1 and Line 2 System Rehabilitation	DOTC-LRTA	LRT Line 1 and 2 rehabilitated	NCR	6,066.88
Common Station for LRT 1, MRT 3, and MRT 7	DOTC	New Light Rail Station Constructed	NCR	-
Metro Manila Central Business Districts Transit System Project (formerly known	BCDA	Mass transit system through Central Business Districts	NCR	-

Title of Project	Agency	Expected Outputs/Description	Spatial Coverage	2013-2016 Investment Targets (in PHP Million)
as "Taguig-Makati-Pasay Elevated Monorail")				
Contactless Automatic Fare Collection System	DOTC	3 Integrated Bus Terminals constructed	NCR	7,500.00
Contactless Automatic Fare Collection System	DOTC	Automatic Fare Collection System for urban rail systems installed	NCR	1,722.00
Bus Rapid System in Metro Cebu, including CTF-WB TA for project preparation	DOTC, LGU	Organised BRT system operationalised	VII	10,571.55
Davao Sasa Port Development Project	DOTC	Port facilities improved (quay cranes, buildings, yard lighting, reefers)	XI	-
Makati-Manila-Paranaque Mass Transit Loop	DOTC	Organised mass transit system operationalised	NCR	-
Installation of Intelligent Transport System (Module A & B)	MMDA	Traffic Signal Controls System installed; Safety, Road Information, Traffic Law Enforcement Systems installed	NCR	3,399.98
MaPaLla (Manila Bay- Pasig River-Laguna Lake) Mass Transit Loop	DOTC	Organised Water Ferry system Operationalised	NCR	-
Tumauini Reservoir Project	DA-NIA	2,385 ha of new area generated and 3,615 ha of existing irrigated area rehabilitated	II	450.00
Chico River Pump Irrigation Project	DA-NIA	8,700 ha of new irrigated area generated	II	600.00
Ilaguen Multipurpose Project	DA-NIA	30,000 ha of new irrigated area generated	II	1,300.00
Balintingon Reservoir Multipurpose Project	DA-NIA	14,900 ha of new irrigated area generated	III	500.00
Angat Dam and Dyke Strengthening Project (ADDSP)	MWSS	Angat main dam and dyke rehabilitated	NCR, III	5,719.90
Angat Water and Utilisation	MWSS	Aqueducts of the Angat Dam rehabilitated	NCR, III	4,350.00

Title of Project	Agency	Expected Outputs/Description	Spatial Coverage	2013-2016 Investment Targets (in PHP Million)
and Aqueduct Improvement Project (AWUAIP), Phase 3				
New Centennial Water Source Project	MWSS	Laiban Dam at the upper Kaliwa River and Kaliwa Low Dam at the downstream of Kaliwa River constructed	NCR	15,000.00
Bulacan Bulk Water Supply Project (BBWSP)	MWSS	Approximately 230 MLD of water provided and a water treatment plant, treated water reservoir, booster pump station, treated water transmission mains, and interconnection to water districts' trunk lines constructed	III	13,260.00
Rehabilitation, Operation and Maintenance of the Angat Hydro Electric Power Plant (AHEPP) Auxiliary Turbines 4 & 5 through PPP	MWSS	Auxiliary turbines 4 & 5 economic life extended up to 30 years and energy and load output increased by 60 percent	III	1,155.18
Uprating of Agus 6 Units 1 & 2	PSALM	Total plant capacity of Agus VI increased from 50 MW to 69 MW and the units economic life extended for a minimum of 30 years upon completion	X	2,598.00
New Communication, Navigation and Surveillance/ Air Traffic Management Systems Development Project	DOTC-CAAP	CNS/ATM equipped airport network (selected airports)	Nationwide	1,507.17
Integrated Disaster Risk Reduction and Climate Change Adaption Measure in the Low-Lying Areas of Pampanga Bay, Pampanga	DPWH	Flood damage to Pampanga mitigated by increasing waterways capacity of Third River, Eastern Branch River, Caduang Tete and Sapang Maragul River	III	3,112.94
Valenzuela-Obando-	DPWH	Flood damages mitigated by flood control and	NCR, III	7,700.00

Title of Project	Agency	Expected Outputs/Description	Spatial Coverage	2013-2016 Investment Targets (in PHP Million)
Meycauayan (VOM) Area Drainage System Improvement and Related Works Project (Metro Manila, Bulacan)		drainage improvement works in the VOM area and its surroundings, thereby improve the living conditions and promote/enhance economic activities in the said area		
Implementation of immediate high-impact projects identified under the Master Plan for Flood Management in Metro Manila and Surrounding Areas	DPWH	-- Flooding in Metro Manila and its surrounding areas with a total area of 4,354 sq. km or 435,400 hectares reduced -- Administration areas in and around the Study Area include sixteen (16) cities and one (1) municipality in NCR, 63 cities/ municipalities in the CALABARZON area and eight (8) cities/municipalities in Bulacan with a population of 20,433,722 in and around the Study Area, and estimated population of 17,147,658 in the Study Area.	NCR, III, IV-A	5,000.00
DOTC Road Transport Information Technology Infrastructure Project, Phase I	DOTC-LTO, DOTC-LTFRB	Processing time of motor vehicle registration and franchise issuance reduced through IT system	Nationwide	8,750.00
Motor Vehicle Inspection and Type Approval System	DOTC-LTO		Nationwide	1,300.00
National Support Fund for Local Road Management	DILG	A performance-based incentive grant system that supports LGU road maintenance and road rehabilitation works	Nationwide	3,832.14
Roads in Conflict-Afflicted Areas	DPWH	Roads serving conflict-afflicted areas constructed/improved	ARMM	-
Public-Private Partnership (PPP) for School Infrastructure Project (PSIP) II	DepEd	10,680 classrooms (with toilets and furniture) designed, constructed and maintained in selected regions for a period of ten (10) years	I, CAR, II, III, IV-B, V, VI, VII, VIII, IX,	8,865.55

Title of Project	Agency	Expected Outputs/Description	Spatial Coverage	2013-2016 Investment Targets (in PHP Million)
Development and Operation of Waste-to-Energy Facilities	DENR-EMB, NSWMC		X, XI, XII, XIII, NCR, III, IV-A	1,500.00
National Sewerage and Septage Management Programme (NSSMP)	LWUA	On-the-ground sewerage and septage projects and programmes developed, capacity building support and financial incentives provided by the NG, 76 sewerage or septage management systems installed by 2020 covering a population of about 9,877,000 through local implementors, sewerage systems developed in 17 HUCs (Baguio, Angeles, Olongapo, Lucena, Puerto Princesa, Bacolod, Iloilo, Cebu, Lapu-Lapu, Mandaue, Tacloban, Zamboanga, Cagayan de Oro, Iligan, Davao, Gen. Santos, Butuan). The project is a bottom-up, demand-driven project that targets local implementers—LGUs, water districts, and private service providers.	CAR, III, IV-A, IV-B, VI, VII, VIII, IX, X, XI, XII, XIII	597.00
PTV Revitalisation Programme	PCOO-PTNI	-- Phase 1: Further improvement of key production & broadcast equipment, establishment of five regional centres & roll-out of analog transmitters in 11 priority areas nationwide -- Phase 2: Digitalisation of production, studio, master control, new media systems of the PTV Main Station and in five regional centres -- Phase 3: Digitalisation of terrestrial TV broadcasting systems of the People's Television Network Inc.	Nationwide	2,851.39

Title of Project	Agency	Expected Outputs/Description	Spatial Coverage	2013-2016 Investment Targets (in PHP Million)
Public-Private Partnership (PPP) for School Infrastructure Project (PSIP) Phase I	DepEd	9,301 classrooms (with toilets and furniture) designed, constructed and maintained	I, III, IV-A	15,326.86
Modernisation of the Philippine Orthopedic Center (POC)	DOH	The project envisions the development of a new facility intended to be a super-specialty tertiary orthopaedic hospital on an 8,000-square meter area within the National Kidney and Transplant Institute (NKTI) Complex along East Avenue, Quezon City.	NCR	5,691.50
Water District Development Sector Project	LWUA	Water supply systems in project WDs rehabilitated and expanded and septage treatment facilities in a few of the project WDs developed, and assistance in project management, institutional development and capacity building provided	I, XII (Additional projects still to be identified)	2,620.11
TOTAL				551,545.75

Annex 2 – ODA Profile and Infrastructure Pipeline

Table 7.A.4: Profiles of Developing Partners, by Strategy Framework, by Priority Areas

Development Partners	Country Assistance Strategy/Framework	Priority Areas
MULTILATERALS		
Asian Development Bank (ADB)	Country Partnership Strategy (CPS) 2011-2016 - Country Operations Business Plan (COBP)	Transport, energy, education, agriculture and natural resources (with operations limited to the Strategy 2020 core area of environment), and water supply, and other municipal infrastructure and services. Support to public sector management (cross-cutting themes)
International Fund for Agricultural Development (IFAD)	Philippines Country Strategic Opportunities Program (COSOP) for the period of 2010-2014	IFAD's thrust is enshrined in its objective to "enable the rural poor to overcome their poverty."
United Nations System	United Nations Development Assistance Framework (UNDAF) 2012-2018 Signed on 21 July 2011	Universal access to quality social services with focus on the Millennium Development Goals (MDGs) Decent and productive employment for sustained, greener growth Democratic governance Resilience toward disasters and climate change Environment and natural resources protection and conservation
WB	WB Country Assistance Strategy (CAS) FY 2010-2012 extended up to FY 2013 (July 2009 June 30, 2013) [Both for IBRD and IFC]	Stable Macroeconomy Improved Investment Climate Better Public Service Delivery Reduced Vulnerabilities Good Governance (cross-cutting)
BILATERALS		
Asia-Pacific		

Development Partners	Country Assistance Strategy/Framework	Priority Areas
Government of Australia, Australian Agency for International Development (AusAID)	Philippines-Australia Statement of Commitment 2012-2017 (signed: 14 March 2012)	Education Improving Local Government Capacity Disaster Risk Management/Climate Change Peace and Security *Cross-Cutting Themes* Governance/public financial management Human resource and organisational development Gender Public private partnership
People's Republic of China	Philippines-China Five-Year Program for Trade and Economic Development, 2011-2016 (signed: 31 August 2011)	Agriculture and fishery Infrastructure and public works Mining Energy ICT Processing and manufacturing Tourism Engineering services Forestry
Government of Japan	Country Assistance Policy, 2012-2016 (under formulation stage)	Achieving sustainable economic growth through further promotion of investment Overcoming vulnerability and stabilising bases for human life and production activity Peace and development in Mindanao

Development Partners	Country Assistance Strategy/Framework	Priority Areas
Republic of South Korea, Korea International Cooperation Agency (KOICA)	Country Partnership Strategy, 2012-2016 (under formulation stage)	Socioeconomic infrastructure development Agricultural and water resources development Health and medical service
	Framework Arrangement Concerning Loans Country (signed: 21 November 2011)	
Korea Eximbank-Economic Development Cooperation Fund (EDCF)		
New Zealand	ASEAN-New Zealand Joint Comprehensive Partnership Agreement (signed: 22 July 2010)	Economic development in the fields of agriculture, eco-tourism and enterprise development Safe and equitable communities Energy
West Canada	Strategy on Sustainable Economic Development (discussed during the September 2010 Consultations)	Sustainable economic development
European Union	EU Country Strategy Paper for the Philippines 2007-2013	Health, governance, trade-related assistance, vulnerable populations, support to the Mindanao peace process
	EU Multi-Annual Indicative Programme 2011-2013 (11 November 2010)	
France	French Financial Protocol expired in 2008; projects considered on a case-by-case basis	ICT, energy, transportation, environment, health
	GPH-AFD MOU on AFD's Development Activities to be signed on 23 May 2012	Climate change, green infrastructure, renewable energy and energy efficiency

Development Partners	Country Assistance Strategy/Framework	Priority Areas
Spain	Proposed Philippines-Spain MOU on Financial Cooperation in Support of Trade and Investment to be signed in 2nd half of 2012	Water treatment, new and renewable energies, energy and electricity, civil infrastructure, capital goods, turn-key projects, ICT, solid waste treatment, engineering and architectural services and works.
	Proposed Strategic Partnership Framework for Development Cooperation to be signed in 2nd half of 2012	Health, basic social services (health and water and sanitation), governance, peace process
USAID	Country Assistance Strategy Philippines: 2009-2013 (no signing)	Economic governance, health, environment and energy, education, Mindanao peace and development
	Draft Country Development Cooperation Strategy 2012-2016	Basically the same areas

Source: 2011 ODA Portfolio Review of the National Economic and Development Authority.

Table 7.A.5: ODA Infrastructure Pipeline

(as of 1st Quarter 2013)

Project Title	Project Description	Region	Implementing Agency	Loan Amount (In US$ million)	Grant Amount (In US$ million)	GOP/PS Counterpart	Total Project Cost
Asian Development Bank-Loan							
Market Transformation through Introduction of Energy-Efficient Electric Vehicles Project	The project will replace traditional tricycles particularly those aging tricycles and those running on two-stroke gasoline engines and promote the establishment of new associated electric vehicle support industries (e.g., battery leasing/recycling/ disposal, motor supply chain and charging stations) in the Philippines.	III, IV, XI, NCR, other regions to be identified	DOE	400.00	21.00	79.00	500.00
Water District Development Sector Project	The loan will help (1) improve living conditions in urban areas outside Metro Manila; (2) enhance competitiveness by developing water supply infrastructure; (3) develop the institutional capacity of water utilities; (4) support the reorganisation and institutional development of water districts and the LWUA; and (5) contribute to much needed sector reform. The project is expected to (1) increase the access of the population in the provincial cities to improved water supply and sanitation; (2) reduce the quantity of nonrevenue water and enhance asset management; and (3) improve the operating and financial	Nationwide	LWUA	50.00			50.00

Project Title	Project Description	Region	Implementing Agency	Loan Grant Amount (In US$ million)	GOP/PS Counterpart	Total Project Cost
	performance of water utilities.					
Urban Water Supply and Sanitation Project	The project aims to improve the water supply and sanitation (WSS) services in Metro Cebu, Davao City and other to-be-identified urban areas, by providing investment capital and technical assistance to the respective water districts (WDs).	VII and XI	DCWD and MCWD	70 (plusUS$50 million from AFD; US$50 million from AIF)		TBD
Alternative Water Source for Metro Manila	For discussion	NCR, III and IV	MWSS	50 (plus US$100 million from AIF)		TBD
Second Road Sector Institutional Development and Investment Programme	For discussion	TBD	DPWH	200 (plusUS$75 million from AIF; US$30 million from ADFD)		TBD
Integrated Transport Terminal	For discussion	TBD	DOTC	100.00		100.00
Solid Waste Management Sector Project	The proposed subject project aims to improve Solid Waste Management (SWM) in the Philippines through provision of investments to the local government units (LGUs) in establishing SWM infrastructure.	TBD	DENR	70.00		TBD
Angat Water Transmission Improvement Project	The project will secure raw water supply for the 15-million inhabitants of MWSS service area, through the rehabilitation of the Angat	TBD	MWSS	50.00		50.00

Project Title	Project Description	Region	Implementing Agency	Loan Amount (In US$ million)	Grant Amount (In US$ million)	GOP/PS Counterpart	Total Project Cost
	transmission line.						
Japan International Cooperation Agency (JICA)-Loan							
LRT Line 1 South Extension (hybrid PPP: Private sector undertakes CW and E&M whole GOP provides for the rolling stock and depot through JICA ODA STEP loan)	The project will extend LRT Line 1 by an approximately 11.7 km from Baclaran Station through the cities of Parañaque and Las Piñas, up to the municipality of Bacoor Cavite. It will involve civil works, electro-mechanical works, rolling stock, and operation and maintenance.	NCR, IV-A	DOTC	611.84		128.75 (GOP) 748.83 (Private sector)	1,489.42
LRT Line 2 East Extension	The project involves the design and construction of the 4.19-km eastern extension of the existing LRT Line 2 from the Santolan Station at Marcos Highway fronting SM Marikina, and terminating at Masinag Junction or the intersection of Marcos Highway and Sumulong Highway. The total length of LRT Line 2 will be approximately 16.75 km, upon completion of the project.	IV-A	DOTC	48.04			188.20
New Bohol Airport Construction and Sustainable Environment Protection Project	The project involves the development of a new airport facility of international standards in Panglao Island, Bohol to replace the existing Tagbilaran Airport due to its limitations and safety concerns.	Region VII	DOTC	141.90		38.20	180.11

Project Title	Project Description	Region	Implementing Agency	Loan Grant Amount (In US$ million)	GOP/PS Counterpart	Total Project Cost
Cavite Laguna Expressway (CALAX) Project	The project involves the financing, design, and construction of a new 47.02 km, four-lane expressway from the end of the Cavite Expressway (CAVITEX) in Kawit, Cavite, to the Mamplasan Interchange of the South Luzon Expressway (SLEX) in Biñan, Laguna. It aims to provide better access to Cavite and Laguna, where 49 ecozones/industrial estates, 1,590 companies/locators, and 27 residential subdivisions are located and around 500,000 workers are employed.	IV-A	DPWH	180.63	245 (Govt) 436 (Private)	861.22
World Bank (WB)-Loan						
Cebu Bus Rapid Transit	The project will establish a Bus Rapid Transit (BRT) System in Cebu City. The project aims to provide improved mobility for people in Cebu City and will offer a more efficient travel in and around the city, and will provide safer and environment friendly mode of travel.	VII	DOTC, Cebu City	IBRD - 110 CTF 25 AFD - 52		187.00
Renewable Energy Development Project (Ph RED)	The project will continue scaling up rural electrification and renewable energy expansion of the ongoing Rural Power Project	TBD	TBD	TBD		100.00
Secondary/Local Roads	As conceptualised by DPWH and DILG, the programme aims to improve the quality of roads convergence areas and promote economic activities in the influence	TBD	DPWH/DILG	250.00		250.00

Project Title	Project Description	Region	Implementing Agency	Loan Amount (In US$ million)	Grant Amount (In US$ million)	GOP/PS Counterpart	Total Project Cost
	areas of such roads leading to tourism service centres.						
France - Agence Francaise de Development (AFD)-Loan							
Bus Rapid Transport (BRT) Cebu (co-financing with World Bank)	The project, which is proposed to be co-financed with the World Bank, involves the construction of a bus rapid transit corridor (15 km) and system in the city of Cebu. The project's development objectives are to (1) improve passenger mobility in the project's corridors by providing an alternative that is safer, more secure, more efficient, and generates fewer emissions; and (2) to demonstrate effective public-private partnership arrangements in the Philippines' first BRT. AFD funding will be dedicated to the financing of the traffic management component of the project.	Region VII	DOTC	70.00-75.00	not specified		200.00
Urban Water Supply and Sanitation Project (Davao City & Metro Cebu Water Districts) (co-financing with ADB)	The project aims to improve the WSS services in Metro Cebu and Davao City by providing investment capital and technical assistance to the respective Water Districts. It specifically targets the expansion of water supply capacity, as well as the rehabilitation and expansion of water treatment facilities and the construction of waste-water treatment and sanitation facilities. The project is expected to sustainably	VII and XI	DCWD and MCWD	65.00	not specified		140.00

Project Title	Project Description	Region	Implementing Agency	Loan Amount (In US$ million)	Grant Amount (In US$ million)	GOP/PS Counterpart	Total Project Cost
	improve the water supply services in the context of water resource scarcity and foreseeable impact of climate change on water resource availability.						
Korean Economic Development Cooperation Fund (EDCF)							
Samar Pacific Coastal Road Project	The project involves the construction/Improvement of 27.8km of road as follows: Jct. Simora – Simora Bridge (0.2km) Jct. Simora - Jct. Palapag (12.8km out of 18.0km) Jct. Palapag - Lapinig (12.0km out of 48.6km) Arteche - San Policarpio (2.8km out of 25.2km) Construction of Simora Bridge(141m)*, Jangtud Bridge (30m) and Pinaculan Bridge (50m)	VIII	DPWH	38.78		5.01	43.79
Northrail-Southrail Linkage Project, Phase I (NSLP 1) - Supplemental Loan	The Project aims to ensure the successful completion and development of the commuter rail service from the southern part of Manila to Metro Manila through improvement of tracks and provision of newly identified working scope.	NCR	PNR	17.81		3.57	21.38
Northrail-Southrail Linkage Project, Phase II (NSLP 2)	The Project aims to upgrade the present commuter rail service from Alabang to Calamba through track improvement, including double tracking, and the purchase of rolling stocks to alleviate traffic congestion in Metro Manila and adjacent	NCR, IV-A	PNR	111.54			151.04

Project Title	Project Description	Region	Implementing Agency	Loan Amount (In US$ million)	Grant	GOP/PS Counterpart	Total Project Cost
	urbanised areas.						
Baler-Casiguran Road Project	The project will complete the remaining 32.97 km unpaved sections of the 116-kilometer Baler-Casiguran road (as appraised by Korea Eximbank). The road passes through flat, rolling and mountainous terrains and crosses more than 30 rivers and creeks on a 20-meter right-of-way (ROW).	III	DPWH	31.14		4.46	35.60
Casiguran International New Port Project	The project involves the development of an international new port in Casiguran Bay with the following major components/facilities: (1) Multi-purpose wharf (2 berths for 20,000 DWT) - For operation buildings, storage, wellbeing facilities, storage yards, substations, maintenance buildings, services areas, gates, etc. (2) Passenger wharf (1 berth for 400 GT) - For passenger terminal. (3) Fishery wharf - For marine products marketing stalls, storage, ship repair facilities.	III	APECO	41.83		5.54	47.37
Albay West Coast Road Project	The project involves the construction/improvement of the 42.9-km road from Pantao, Libon to Caratagan, Pioduran. The improvement will cover 31.83 kms road of PCCP. It will also cover the repair/replacement of 5 bridges with	V	DPWH	20.38		7.28	27.66

Project Title	Project Description	Region	Implementing Agency	Loan Amount (In US$ million)	Grant Amount (In US$ million)	GOP/PS Counterpart	Total Project Cost
	an aggregate length of 250 m. Other works include slope protection and drainage.						
Modification of the Malinao Dam Project	The project includes: (1) dam (and road) improvement; (2) irrigation improvement (land levelling, construction of new farm ditches, concrete lining of farm ditches, lateral canal extension, road repair and improvement, installation of turnouts and postharvest facilities); (3) institutional development; (4) land acquisition and compensation; and (5) consulting services.	VII	DA-NIA	16.58		2.50	19.08
Chinese ODA Loan Financing							
Upgrading and Rehabilitation of the Navotas Fish Port Complex	Project involves the upgrading and rehabilitation of the existing Navotas Fish Port Complex. Project outputs include the following: (1) upgrading/Improvement of the NFPC facilities; (2) establishment of cold storage facilities; (3) upgrading of Piers 4 and 5 and provision of an area; for other fishery and agriculture-based industries; (4) conversion of Piers 4 and 5 to wharf landing; (5) provision of waste water treatment facility; (6) upgrading of landing quay from Market Hall 1 to Pier 2; and	NCR	DA-PFDA	61.67		3.61	65.28

Project Title	Project Description	Region	Implementing Agency	Loan Amount (In US$ million)	Grant Amount (In US$ million)	GOP/PS Counterpart	Total Project Cost
	(7) rehabilitation of the west breakwater						

Source: National Economic and Development Authority.

CHAPTER 8

Singapore Country Report

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Introduction

Singapore is a city-state comprising a small island measuring 704 sq. km (including over 123 sq. km of land reclaimed from the sea). Its population in 2013 was 5.46 million (targeted to exceed 6 million). There are over 7,244 people per sq. km, the highest in the ASEAN region. Not surprisingly, much of the country is built up, consisting of houses, apartment blocks, office and retail buildings, public amenities, infrastructure facilities, and factories and workshops. It lacks natural resources, the most serious of which is a sufficient natural water supply, though it is well endowed with sheltered deep-water harbours and anchorages.

Singapore has experienced strong economic growth over the last 30 years or more, enabling its population to achieve the highest income per capita in East Asia. In tandem with its economic development, small size and dense population, Singapore's government also places a high premium on the creation of an advanced infrastructure and on the adoption of appropriate funding arrangements.

This paper first provides an overview of Singapore's government administration, economy, and public finance. The main part of the paper examines the institutional framework and financial arrangements to facilitate the development and operation of the different infrastructure sectors. Next, the role of Public-Private Partnerships (PPPs) and foreign investment in Singapore’s infrastructure is analysed. This paper will also discuss how far

Singapore's infrastructure companies have contributed to infrastructure development in other ASEAN states, and the potential for increasing their connectivity to these states. The conclusion will highlight the key features in the development, operation and financing of Singapore's infrastructure. Infrastructure sectors covered in this study consist of land transport, electrical energy, water and drainage, maritime port and airport, and information technology and communications (ITC).

Overview

Government Administration

The government administration in Singapore, known for its efficiency and professional competence, consists of a civil service of 15 ministries, each headed by a minister. Also, there are 64 statutory corporations (more popularly known as statutory authorities or boards). Although outside the civil service, each statutory authority is affiliated to a parent ministry and subject to the executive authority of the relevant minister, but at the same time is operationally autonomous. Statutory authorities depend, sometimes to a small extent, on government funding and are responsible for many areas of policy implementation, including infrastructure development and regulation.

Separate from the government bureaucracy but subject to government control are so-called government-linked companies (GLCs). The government holds an exclusive or majority stake in a GLC through a holding entity or company, mainly Temasek Holdings (other holding entities are certain statutory corporations and the Minister for Finance Inc.). Government-linked companies are required to compete with private sector companies and make profits. They have long played a key role in Singapore's infrastructure development, although in recent years the government has reduced its shareholding in many of them through a divestment programme (Jones, 2006).

The Economy

Singapore's economy is characterised by strong gross domestic product (GDP) growth rates. They averaged 6 percent per year between 2003 and 2012 but fell

to only 1.2 percent in 2012 (Table 8.1). Singapore is categorised as a high-income nation, with a GDP per capita of USS$61,103 at purchasing power parity in 2011, which is the highest in Asia. The economy is strongly export-oriented and is mainly based on high value-added products and services such as advanced technology, micro-engineering, bio-medical products, agro-technology, research and development, and a wide range of professional, business, and technical services (Ghesquiere, 2007). Given these specialised niche sectors and overall conditions conducive to business, the World Economic Forum (WEF) in 2012 rated Singapore's economy as the second most competitive among 144 countries surveyed (WEF, 2012).

Table 8.1: Singapore Growth Rates and GDP Per Capita, 2003-2011

	Growth Rates of Real GDP (%)	GDP Per Capita US$ at PPP
2003	4.0	37,783
2004	9.2	41,875
2005	7.4	45,374
2006	8.8	49,373
2007	8.9	53,048
2008	1.7	55,905
2009	-1.0	55,074
2010	14.8	57,902
2011	4.9	61,103
2012	1.2	

Source: Asian Development Bank (ADB), 2012.

Public Finances

The fiscal policy of Singapore's government down the years has been conservative, the goal being to ensure government spending and revenue aggregates remain a small proportion of GDP so as to maximise the economic resources available to the private sector. Expenditure has in nearly all years been below 18 percent of GDP and regular and sizeable budget surpluses (sometimes over 7% of GDP) have been achieved (Table 8.2). In 2012, the government expenditure was 14.5 percent of GDP, which was accompanied by a much-smaller-than-usual budget surplus of 1 percent as a result of weaker revenues due to a slowdown in the economy.

Table 8.2: Fiscal Indicators, 2007-2012

	Total Government Expenditure as % of GDP	Fiscal Balance
2007	16.4	10.7
2008	18.3	7.9
2009	15.5	1.3
2010	16.8	5.5
2011	17.6	7.3
2012	14.5	1.0

Source: IMF, 2012.

The accumulation of budget surpluses has enabled the government to build up its foreign reserve holdings. These reserves have increased noticeably over the years, rising from an already high of 60 percent of GDP in 2000 to nearly 80 percent in 2010, one of the highest aggregates of foreign reserves in the world. Because of Singapore's strong indicators (strong economic growth, conservative fiscal policies, no foreign debt, and stable political environment), various rating agencies gave the government a credit rating of triple A (1/600 chance of default). This is the highest credit worthiness category, reflected in very low bond yields (in August 2013, only 0.22% for two-year bonds and 2.46% for ten-year bonds) (Monetary Authority of Singapore, 2013; ADB, 2013a; Accountant General's Department, 2011).

Features of Singapore's Infrastructure

The road system in Singapore is highly developed. There are 161 multi-lane expressways (1,059 lane km) and 652 arterial roads (3,054 lane km) together with 2,500 paved minor and side roads (nearly 5,000 lane km). To facilitate traffic flow, there are 119 flyovers, 212 vehicle bridges and 20 underpasses and tunnels (Land Transport Authority [LTA], 2012a, 2012b). Given the size of Singapore, these figures indicate that a significant amount of land space has been used for road development. To further facilitate ease of travelling, a mass rapid transit (MRT) and a light rail transit (LRT) have been developed for over 25 years, and now consist of 99 MRT stations and 34 LRT stations over a 177-km stretch (LTA, 2012b).

The water supply in Singapore emanates from four sources: 200-300 million gallons per day are supplied from 17 artificial reservoirs in Singapore, and 250 million gallons per day are imported by pipeline from Malaysia. The supply is supplemented by 115 million gallons of recycled waste and sewerage water (about 30% of the total supply and known as NEWater), and 50 million gallons of desalinated water (about 10%). Some of the recycled water is returned to the reservoirs (Public Utilities Board [PUB], 2012).

The storm water drainage system consists of 7,000 km of public roadside drains and about 1,000 km of major canals and waterways. The main conduit of the sewerage system is a 48-km deep tunnel that channels the waste water and sewerage to the Changi Water Reclamation Plant, where the water is treated, some of which is then recycled as NEWater, as mentioned above (PUB, 2012).

Most of the electricity in Singapore is generated by five leading power companies and transmitted to sub-stations and from there to the consumers via underground cables. A total of 3,955.2 ktoe[1] of electricity was generated in 2011, mainly from natural gas. Meanwhile, electricity sales reached 41,725 Giga Watt Hours. The most energy-intensive sectors were the industrial-related (40.2%) and commerce- and services-related sectors (37.5%) (Energy Market Authority, 2009, 2011). Singapore's electricity generating capacity more than meets the demand for electricity.

The maritime port in Singapore is extensive and is one of the leading global maritime hubs, especially as an entrepôt and for transhipment. It comprises 84 container berths under two terminal companies handling over 538 million tonnes of cargo, including 32 million containers (20 feet or equivalent) in 2012 (Maritime Port Authority [MPA], 2013a). The airport at Changi is also a major global transport hub, comprising four terminals (with another one projected) with 144 parking bays and taxiways extending over 23,000 metres. It serves more than 100 airlines flying to 250 destinations in 60 countries. In 2012, the airport was used by more than 51 million passengers. Changi, too, is a leading global airfreight hub, handling large volumes of air cargo each year (Changi Airport Group [CAG], 2013a).

An advanced ITC infrastructure has developed with significant ITC penetration.

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[1] Amount of energy equivalent to that contained in 1,000 tons of oil.

About 97 percent of households have fixed-line connections. Mobile phone penetration is 153 percent of the resident population. Household wired broadband penetration is 104 percent and wireless broadband penetration is 173 percent of the resident population. The international transmission capacity owned by licensed operators has now reached near 8 million Mbps, mainly through submarine cables. A major development in recent years is the creation of fibre optic networks. For the quality and extent of its info communications infrastructure and services, Singapore was ranked second out of 144 countries by WEF in 2012 (Info-Comm Development Authority [IDA], 2012a, 2012b, 2012c; WEF, 2012).

Land Transport

Institutional Framework

The ownership of the road system is vested in the Land Transport Authority (LTA), which is also responsible for building new roads and for managing and repairing existing roads and road tunnels. It is a statutory authority, affiliated to the Ministry of Transport, and subject to the executive authority of the Minister for Transport. As a statutory authority, it remains operationally autonomous.

The LTA is also responsible for the planning, construction, development and regulation of Singapore's mass rapid transit (MRT) and light rail transit (LRT). Its regulatory function includes implementing and monitoring performance standards.

Meanwhile, the operational services are undertaken by a separate commercial entity. Up to 2011, a major portion of the network was handled by the SMRT Corporation, a GLC listed in the Singapore Stock Exchange and with 54 percent of its equity vested in Temasek Holdings. It was specifically created in 1987, when the MRT began, and was awarded the operating licence without a competitive tender for the original network known as the North-South East-West Line (NSEW). Subsequently, it was given the operating licences for two further lines (the Light Railway Transit Line and the Circle Line). However, in 2003, the licence to operate the small North-East line and, subsequently, two connecting LRT lines was awarded to SBS Transit, which is not a GLC and is majority-owned by Comfort DelGro (SBS Transit, 2013; Comfort DelGro,

2013).

The share of asset ownership has changed over the years. Initially, LTA as the development and regulatory authority, owned both the operating assets (e.g., trains, power supply equipment, cables, and signalling systems), and the non-operating assets (e.g., tunnels, viaducts, tracks, and station structures).[2] In 1998, the operating assets were purchased and managed by SMRT Corporation. For the main parts of the network under the control of SMRT, this split arrangement continues to this day (SMRT, 2013). However, for smaller lines that were created after 1998, the ownership of both the operating and non-operating assets were vested in LTA, while the SMRT Corporation and SBS Transit, as the operators, are still responsible for maintenance, repair and upgrading (LTA, 2008).

In 2011, significant changes were made to the future licensing and ownership of the MRT. When new lines are created or when existing licences expire, the contract to operate the lines will be put up to competitive tender in contrast to the previous practice, and will extend over a 15-year term only (as opposed to 20-30 years). Also under the new arrangement, the ownership of the operating assets, which had been previously vested in the operator, will be given to LTA, simply confirming the ownership model for the lines created after 1998. The shorter licence terms, combined with competitive tendering, are intended to promote contestability in the operation of the MRT with a view to creating greater efficiency and value for money. Already, the contract to operate the new Downtown Line has been put up to a competitive tender, with the contract awarded to SBS Transit for 15 years. The other tenderer was SMRT Corporation (LTA, 2008, 2012a; SBS Transit, 2013).

Financing the Road System

The capital funding of the road systems (i.e., replacement of key assets, building of new roads and extensions, and upgrade of existing ones) is financed from the capital budget of the LTA, which is mainly a capital grant from the annual budget of the Ministry of Transport. The operating expenditure

[2] In the first eight years of the MRT, the statutory authority was the MRT Corporation (to be distinguished from SMRT Corporation Ltd), which was absorbed in 1995 into the newly created LTA.

pertaining to the repair and upkeep of the road system and other activities such as managing traffic flows and regulating vehicle ownership and usage is covered by the operating budget of the LTA, of which 70 percent consists of a "management fee" paid to the agency out of the Ministry of Transport's budget (previously referred to as a grant-in-aid). The bulk of the remainder of the operating budget consists of taxes, fees, and charges levied on vehicle owners and users (LTA, 2012a; KPMG, 2012).

Financing MRT System

Operational funding: The funding of the MRT system is divided between the LTA and the operators. In return for their operational services, SMRT and SBS Transit get their revenues from the fares, rental fees of premises at stations, and advertising fees. Operating costs of operators include staff compensation, and the costs of maintenance and repair of operating and non-operating assets (this applies even when LTA is the asset owner). In addition, out of their operating revenue, the operators pay LTA each year a licence fee and, where LTA owns the operating assets, are required to pay for the lease of assets (LTA, 2012a; KPMG, 2012; SBS Transit, 2013; SMRT, 2013).

Replacement and construction funding: For the part of the main network (North-South-East-West Lines) where SMRT owns the operating assets, SMRT pays for the replacement and upgrade of these assets from its own financial resources. This consists of its retained earnings (mainly cash and near-cash assets), and debt issues composed largely of short- and medium-term notes.

However, for the other lines where LTA owns the operating and non-operating assets, it is LTA—and not the operator—who is responsible for funding their replacement from its capital budget. Up until the present, LTA has been paying for the construction of new lines and extension of those lines it owns from its capital budget sourced from the Ministry of Transport (LTA, 2008, 2012a).

Future replacement and construction funding: In future, the cost of construction as well as replacement will be shared between LTA and the operators. This will be done through a newly created Sinking Fund, into which the operators' yearly licence and lease payments will be lodged. The fund,

along with capital grants from LTA, will finance future construction and replacement expenses (LTA, 2008, 2012a).

Electrical Energy

Institutional Framework

Five of the six leading power generation companies were previously GLCs that were wholly owned or majority-owned by Temasek Holdings. Since 2005, Temasek has divested these companies either totally or to the extent where it now has a minority shareholding only (Today, its highest stake is in Sembcorp, in which it has a 49.5% shareholding.).

In the electricity sector, Singapore's retail and wholesale power generation is now a largely private and toughly competitive market where the government's stake is minimal. On the other hand, the transmission and distribution of electricity—which are separated from power generation—were previously undertaken by the Public Utilities Board (PUB), a statutory authority, but in 1995, the functions were transferred to Singapore Power Ltd (SP), a new wholly state-owned company under Temasek Holdings. This makes the SP Group—apart from being licensed to supply electricity—the owner and manager of the transmission and distribution grid (EMA, 2009, 2011; Chan, 2011).

Financing the Energy Sector

When the energy sector was corporatised and privatised in line with Singapore's strategy to liberalise the electricity market, it was understood that operators should be able to finance their operating costs as well as raise funds for capital projects. The upshot is to levy commercial prices on consumers, where prices fall under two categories. The first category refers to contestable prices that are paid by large consumers either directly from power generating companies acting as a retailers, or from a pooled or wholesale energy market. The latter is also supplied by the generating companies. The second category refers to prices set for small consumers by the SP Group. These prices are set to reflect the world price of natural gas and oil, as well as generating,

transmission and distribution costs.

Since the energy sector has to meet its own capital expenditures, the usual financing options include issuing new equity, issuing debt, obtaining loans from banks, or drawing on retained earnings. Retailers and wholesalers pay the power companies from the income they receive from consumers (EMA, 2009, 2011; SP, 2012a, 2012b).

Water Supply and Drainage

Institutional Framework

The water supply and drainage system are managed by PUB, which, as a statutory authority, is affiliated with the Ministry of the Environment and Water Resources (MEWR). This includes the purchase of water from Malaysia, and the ownership and management of the key supply and drainage assets—viz. reservoirs, pumping stations, pipelines, drains, and treatment plants. Some plants engaged in the purification and recycling under the NEWater project are also owned and operated by PUB, while others are owned and operated by commercial companies under concession contracts of 20-30 years. In particular, these commercial firms are Sembcorp NEWater and Keppel Seghers, whose parent companies (Sembcorp and Keppel) have been privatised. Likewise, the desalination plants are owned and operated by another independent company, Hyflux Ltd (Keppel Corporation 2013; Sembcorp, 2013a, 2013b; Hyflux, 2012).

It is noticeable that, unlike electricity supply, the operations to manage most of the water supply (with the exception of NEWater and desalination) have not been delegated to commercial companies. This is due to the scarcity of water in Singapore (having a small catchment and reservoir area relative to the demand for water), making it a strategic resource.

Financing Water Supply and Drainage

The PUB's revenue is sufficient to meet most of its operating expenses incurred

in the management of its assets; and in the purchase of water from Malaysia, from the NEWater plants it does not own, and from the desalination plants. In 2012, PUB financed 81 percent of its operating costs mainly from water and sanitation fees levied on households and organisations. The remaining 19 percent was covered by an operating grant from PUB's parent ministry, MEWR (PUB, 2012).

Meanwhile, PUB's capital expenditure on water supply and drainage is financed both by its own retained earnings and borrowings, and by government grants received from MEWR. During the FY 2011-2012, the cost of investments reached S$629 million (US$493 million), of which 42 percent was funded by PUB itself, and the remainder was covered by capital grants. About 31 percent of the cost of self-funded projects came from borrowings. Since 2005, PUB has regularly issued debt with maturities of up to 20 years, although most of its funding is still derived from its retained earnings and government grants (PUB, 2012).

Concession contracts to build, own and operate the NEWater and desalination plants are awarded through competitive tenders based on, among others, the selling price of recycled or desalinated water as proposed by the tenderers to PUB. The most recent tender was for the project to build and operate the second desalination plant, which was awarded to Hyflux in 2011. The companies that won the contracts for the NEWater and desalination plant projects pay for the design and construction expenses usually through borrowings. From their revenue earned from the sale of the water to PUB, they are able to pay for their operating expenses. Meanwhile, their retained earnings and additional borrowing finance other capital expenditures (Keppel Corporation, 2013; Sembcorp, 2013b; Tan, 2011; Hyflux, 2012).

Port and Airport Infrastructure

Institutional Framework

A major part of the maritime port of Singapore was previously owned and managed by the Port of Singapore Authority (PSA) and by Jurong Town

Corporation (JTC), both statutory authorities.[3] In 1996, as part of the restructuring of PSA, the arm responsible for terminal operations was hived off and transferred to a new company, PSA International Pte (Ltd), which is a wholly owned subsidiary of Temasek Holdings. The section of the port under JTC was corporatised in 2002 with the formation of Jurong Port Pte (Ltd), which remained a wholly owned subsidiary of JTC. Thus, both companies are wholly state-owned GLCs. The regulatory and planning arm of the PSA was retained as a statutory authority and renamed Maritime and Port Authority (MPA, 2013b).

The airport at Changi was previously owned and operated by the Civil Aviation Authority of Singapore (CAAS), a statutory authority. However, in a way similar to the PSA's restructuring process, the arm of CAAS that was responsible for managing Changi Airport was converted into a commercial company called Changi Airport Group (Singapore) Pte. Ltd. (CAG) in 2009. Aside from managing the airport's daily operations, CAG took over the ownership of key airport assets such as runways, taxiways, airport buildings, IT networks, and other plant and equipment, as well as the aviation hub at Seletar. The company is wholly owned by the Minister for Finance Inc. and, thus, is a GLC. Today, the CAAS continues to discharge its duties in regulating the airport, providing air navigation services including air traffic control, negotiating air service agreements with other states, and planning the long-term development of Singapore as a global air hub (CAG, 2012, 2013b).

Financing Maritime Port Infrastructure and Services

Financing the maritime port infrastructure is, of course, the responsibility of the terminal companies PSA International Pte (Ltd) and Jurong Port Pte (Ltd). The accounts of Jurong Port are not disclosed separately from its holding entity (i.e., JTC), but those of PSA International are. In the latter's case, the revenue in 2012 was nearly S$5 billion (US$3.92 billion). The operating expenses, including depreciation and impairment, amounted to nearly S$3 billion (US$2.35 billion). Capital costs of PSA International are financed from two

[3] Jurong Town Corporation is responsible for constructing, leasing, and regulating industrial sites and business parks and has been renamed JTC Corporation.

sources. One is the extensive reserves, which totalled S$8 billion (US$6.27 billion) in 2012 and are mostly retained earnings. The other is debt issues amounting to S$2.2 billion (US$1.72 billion) in 2012 mainly consisting of notes of short- and medium-term maturities (PSA International, 2013a).

Financing Airport Infrastructure and Services

The costs of CAG in operating Changi Airport (and a small airfield and aviation centre at Seletar) are paid for through the operating revenue composed of various fees and charges levied on users: airlines, passengers and retail outlets. The operating cost in FY 2011/12 was S$1.78 billion (US$1.39 billion) while operating revenue was S$1.12 billion (US$0.88 billion).

The initial capital cost incurred by CAG in the purchase in 2009 of the airport assets from CAAS (at book value) was funded by equity injection from the holding company, the Minister for Finance Inc. It should be noted that the transfer of ownership and operational rights when the airport was corporatised did not entail a competitive tender. Subsequent capital costs of CAG such as those on the construction of new runways and upgrading of terminals were paid for from its retained earnings, which totalled just under S$2 billion (US$1.57 billion) by the end of FY 2011/12. Given the strong reserves of the company, further grants from the holding company in terms of equity injection were not required. Similarly, the company had no need to borrow to finance its capital projects (CAG, 2012).

ITC Infrastructure

Institutional Framework

In the last 30 years, the ITC institutional framework has changed in tandem with the far-reaching changes in global telecommunications and digital media services. Telecommunications services were provided by the then Telecommunications Authority of Singapore (TAS), a statutory authority. However, in 1992, its business arm was corporatised with the creation of Singapore Telecom Plc (Singtel). Meanwhile, TAS remained but was merged with the National Computer Board in 1999 to form the Infocomm Development

Authority of Singapore (IDA). As IDA, it provides licences, regulates telecommunication services and promotes Singapore as a dynamic global info-communication hub (IDA, 2012a).

In the last 10-15 years, other companies have entered Singapore's ITC market in fixed line telephony, mobile and internet services, and digital media. These firms include Star Hub Ltd and M1 Ltd. This has led to significant contestability in the ITC market. An example is the Next Generation Nationwide Broadband Network, which aims to provide ultra-high speed fibre broadband to all homes and business in Singapore.

The IDA licence to design, build, own and operate the primary or passive infrastructure for a term of 25 years was put up for competitive tender (more precisely, a request for proposals) in 2008, and was eventually awarded to OpenNet, a consortium in which Singtel and Axia (a Canadian Company) are major partners. A similar licence relating to the secondary or active infrastructure was opened for competitive bidding in the following year and awarded to Star Hub for the same term of years, with its wholly owned subsidiary, Nucleus Connect, developing and operating the infrastructure.[4] These two levels provide wholesale connectivity, which will be purchased at the third level by retail service providers (RSPs) (IDA, 2012c). Various RSPs compete for business and individual customers on the basis of price packages, and the range of services and products offered (Singtel, 2013; Star Hub, 2013).

Financing ITC Infrastructure and Services

Nearly all operating costs of companies engaged in ITC are covered by their operating revenue. For RSPs, their revenue is generated from the charges paid by retail consumers. The cost of operating and maintaining the active infrastructure of the nationwide fibre optic network at the wholesale connectivity level is paid for by charges levied on the RSPs by the operating company, Nucleus Connect. Likewise, OpenNet, responsible for operating the passive infrastructure, receives its operating revenue from the charges paid by

[4] The primary or passive infrastructure consists of manholes, underground fibres and ducts, and exchanges, while the secondary or active infrastructure consists of switches, and transmission and other electronic equipment.

downstream companies for the use of its assets, including Nucleus Connect and the RSPs (IDA, 2012b; Singtel, 2013; Star Hub, 2013). In defraying capital costs, ITC companies draw upon the usual means of corporate financing: equity funding, retained earnings, and borrowings.

A comparison of the three leading local ITC companies indicates variation in the extent of borrowings. The most leveraged is M1 Ltd, with borrowings at 160 percent of its retained earnings; and the least is Singtel, with borrowings at only 8 percent. In addition, significant funding to defray capital costs (and to a small extent, operating costs) of leading ITC companies has been made available through government grants from IDA. Nucleus Connect and OpenNet together can draw upon a total grant of S$1 billion (US$0.78 billion) in developing the optical fibre infrastructure (M1, 2012; Singtel, 2013; Star Hub, 2013).

Public-Private Partnerships (PPPs) and Foreign Capital

The institutional and financing arrangements indicated above entail PPPs of different types with the government and the business sector taking on varying roles.

In one type of PPP arrangement in Singapore, the government's role entails strategic planning, regulation, licensing and, where necessary, coordination. When a new facility is to be created, the business entity undertakes the responsibility for designing, building, operating and maintaining the physical assets over the term of the licence or contract. In the case of an already existing facility, the responsibility for operating and maintaining is transferred from a government agency to the business entity for the term of the licence or contract. The ownership of the assets may be vested in the operator, or a government agency, or split between the two for the term of the licence (Gunawansa, 2012).

One variation relates to the provision of government financial support in terms of an equity injection or grant. By and large, the Singapore government prefers a fully self-financing operator. However, in certain circumstances, a government subvention is permitted, where the operation of the infrastructure facility is likely to incur losses or where the infrastructure is vital to Singapore's

future economic development, such as the expansion of the MRT and the upgrading of the ITC sector.

It is a moot point whether the arrangements described above are genuinely PPPs, when the construction and/or operational responsibilities are undertaken by wholly or majority government-owned companies (e.g. CAG, PSA International, Jurong Port, SMRT, and Singtel), although they function in a way similar to private businesses.

A second type of PPP is a partnership between a private sector company and a GLC or statutory authority in the supply chain, with the former engaged in production and the latter, in distribution. Examples are the production of recycled and desalinated water by private sector companies, which is then supplied to consumers by PUB, and the generation of electricity by privately owned power stations, which is transmitted to the consumers through the SP network.

A third type of PPP involves shared ownership of the company managing and operating the infrastructure comprising private sector investors and a government holding entity, which for the most part is Temasek Holdings. A number of operating companies are GLCs, in which the government has a majority stake, while the remainder of the ownership is vested in private sector companies. In other operating companies, the situation is reversed: the government holding entity has a minority stake only while the private sector firm holds the majority stake, as in the case of Sembcorp and Keppel. The trend has been for the government to reduce its stake in companies operating infrastructure facilities, although the extent of the divestment has occasionally been limited so that the government holding entity remains the majority shareholder, as in the case of SMRT and Singtel.

An examination of the financial reports of infrastructure companies indicates that the major private sector investors are consistently drawn from the banking and financial sector such as local banks, local subsidiaries of overseas banks, and fund management companies and trusts. Examples, amongst many, are Citibank, DBS Group, HSBC, United Overseas Bank, BNP Paribas, Aberdeen Asset Management, Merrill Lynch, and Morgan Stanley Asia. Factors such as liquidity of banks and financial institutions in Singapore, sound corporate governance of the infrastructure companies and the prospect of a low risk but profitable investment in the infrastructure network may explain why projects

are able to attract capital from the financial sector.

Foreign Investment in Singapore's Infrastructure

Foreign investment in Singapore's infrastructure has been modest. It has been limited to small stakes in infrastructure companies taken by foreign banks and financial institutions. The exceptions have been in the energy and ITC sectors. Four of the energy generating companies are owned by foreign-based companies and consortiums. Foreign investors in the ITC sector include Japanese company NTT Communications Corporation, Qatar Telecom, and the Canadian company Axia mentioned above.

There is potential to increase foreign involvement in infrastructure financing in Singapore and to diversify sources of funding by issuing long-term bonds specific to particular infrastructure projects with a relatively risk-free return. Such bond issuances would be particularly attractive to overseas pension funds, insurance companies and sovereign wealth funds. To underpin bond issuances, guarantees may be secured through the Credit Guarantee and Investment Facility (CGIF) set up by ASEAN+3 and ADB in 2010 (ADB, 2013b).

Connectivity to ASEAN

Many of Singapore's infrastructure companies have spread their wings and invested overseas. For example, SP has acquired energy-based companies in Australia, and Sembcorp has undertaken major energy investments in China, the United Kingdom, Oman, the United Arab Emirates, and India. In addition, the consultancy arms of these companies have provided technical and management expertise for infrastructure projects. This is part of a strategy to develop the external component of the Singapore economy, which is all the more important given its small size and population.

Singtel has made major investments in ASEAN by setting up five wholly owned subsidiaries as well as entering a joint venture with ITC companies in Malaysia and the Philippines. Through its wholly owned subsidiary PSA Vietnam, PSA International has joined forces with Saigon Port by taking a 49-percent stake in the new SP-PSA International Port Co. Ltd and developing and

operating its container port in Ba-Ria Vung Tau Province, Vietnam. A similar joint venture was entered into with Eastern Sea Laem Chabang Terminal Company to operate container terminals at Laem Chabang Port in Thailand (PSA International, 2013b).

Sembcorp has entered a joint venture with three other partners to build and operate the Phu My 3 electricity generating plant in Vietnam and has done likewise to develop and operate water utilities in the Philippines and Indonesia (Sembcorp, 2013c). The consultancy arm of CAG has provided technical advice in the upgrading and extension of Brunei's airport.

However, the investments of Singapore's infrastructure companies in ASEAN countries constitute at present only a fraction of their global reach and do not compare with their investments in the Middle East, China, and India. An example is Sembcorp, which has invested in 48 overseas companies either as wholly owned subsidiaries or as joint ventures, but only three are in the ASEAN region (Sembcorp, 2013c).

Several reasons may be given for the limited involvement in the ASEAN region such as:

- Limited scale of many projects, thus reducing their potential returns;
- Deficient legal and regulatory frameworks;
- Unwieldy bureaucratic controls; and
- Limitations in government capacity to prudently select, plan, organise and execute projects.

A further concern is the lack of standard termination clauses in PPP contracts. Currently, many PPP projects prevent an overseas company from exiting or adjusting a project contract in the event of non-performance by the local partner utility company. These factors significantly increase the risk to the overseas partner and render it difficult to raise finance and collateral to fund the project.

Nevertheless, there is obvious potential for Singapore's infrastructure companies to improve their connectivity to and raise their profile in the region. As the national economies in the region continue to grow, and the need arises for more advanced and extensive infrastructure facilities offering better returns, they these companies could play a role as a major source of investment, and of

technical and management expertise through joint ventures, local subsidiaries, and PPPs. In addition, Singapore is well placed to provide supportive and consultancy services for infrastructure projects in ASEAN. Of particular importance here is the Infrastructure Finance Centre of Excellence (IFCOE) set up in November 2010 as a joint initiative of Singapore's Ministry of Finance and the World Bank. The Centre can provide technical assistance and capacity building, assist regional governments in policy making, and promote the adoption of best practices via hands-on technical advice. These include feasibility studies to identify projects that are viable and of the highest priority, as well as research to determine best practices in infrastructure development and finance. Also within the remit of the Centre is to promote and market infrastructure projects in collaboration with domestic governments so as to attract private sector finance and expertise (Ministry of Finance, 2010; World Bank, 2010).

Conclusion

From the foregoing analysis, the following features have marked the development, management and financing of Singapore's infrastructure:

Corporatisation and Privatisation

In the past, much of the infrastructure was owned and operated by government agencies, either civil service departments or, increasingly over time, statutory authorities. Over the last 20 to 25 years, operational responsibilities and, in some cases, ownership have been transferred to commercial companies (often newly created). Likewise, when new infrastructure facilities are created, they are nearly always operated and, in some cases, owned by commercial companies. The exceptions have been water supply, drainage and roads, which are still managed by statutory authorities. However, infrastructure companies are still subject to the regulation by the relevant statutory authority.

Some of the leading infrastructure companies are GLCs, wholly or majority-owned by a government holding entity, Temasek Holdings being the main one. Even in some of the private sector companies, the government has retained a stake, albeit as a minority shareholder.

In most cases, companies that are responsible for operations of the infrastructure facility also own the physical assets or, in some cases, lease them from the relevant statutory authority.

Contestability

The Singapore government is committed to promote contestability in the various infrastructure sectors so as to achieve greater efficiency and value for money. This generally happens in two ways. The first type of contestability calls for companies to tender for the right to operate (and own) an infrastructure facility under a medium-term concession or licence (often for 15-25 years). The other type of contestability is to allow different companies to operate facilities and to compete for customers on the basis of price and quality of service.

Corporate Financing

With corporatisation, privatisation, and contestability, a corporate system of financing the infrastructure has been increasingly adopted. For the most part, the fees, charges, and taxes at point of delivery have been levied to provide revenue for the operator. Operating expenses are covered by the operator's operating revenue, while investment is funded mainly through retained earnings, and borrowings. Equity injection may be used if necessary to pay for the initial investment, including the purchase of physical assets when they are transferred to a new company in the case of an already established facility. Operating and capital grants from the public budget are made available only when necessary—e.g., to assist in the setting up of a new infrastructure company, to pay for a loss-making but necessary service (e.g., a future section of the MRT), or to finance part of a strategic infrastructure (e.g., roads and water supply).

PPPs

Infrastructure development and operations in Singapore have to a significant degree involved PPPs. These partnerships consist of three types: design, build,

and operate (and in some cases, own) arrangements under a concession or licence; supply chain cooperation between private sector producers and publicly owned distributors; and shared equity between government holding entities and private investors. To a limited extent, overseas investment has provided capital for infrastructure development but this could be further increased through project bond issuances designed to attract international financial institutions, with the option of a guarantee secured through the CGIF.

ASEAN Connectivity

ASEAN connectivity is so far limited, reflected in the small investment made by Singapore's infrastructure companies in other ASEAN states and the small-scale provision of consultancy services. There is, however, scope for the connectivity to increase as the region grows and requires capital and professional assistance in developing and operating advanced infrastructure facilities. Singapore is well placed to meet this need, especially through the IFCOE.

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CHAPTER 9

Thailand Country Report

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Introduction

Infrastructure development in Thailand has seen considerable progress in key sectors such as energy, transport, and water supply, in past decades. In these, the public sector's role has been significant in the areas of planning, construction and operations, and recently, in infrastructure investment. In fact, plans on future development projects focus on the role of private sector investment in infrastructure. Since past infrastructure projects in Thailand through Public-Private Partnerships (PPP) had seen both success stories as well as failures, a study on these experiences in financing can help improve the processes the private sector undergoes and can serve as cases to learn from for other developing countries.

This study looks briefly into the infrastructure investment in the energy sector and then reviews in more detail the infrastructure development in the transport sector, with special attention on the private sector's participation. The next section highlights key information on infrastructure investment in Thailand. Section 3 then describes the sources of infrastructure financing while section 4 reviews the past experiences of the private participation [1] in transport

[1] For Thailand, the Act on Private Participation in State Undertaking or B.E. 2535 (1992) broadly defines the term "private participation" as any projects in which private individuals jointly invest with public authority by any means, or solely invest in a project by means of licensing, concession agreement, or rights granted in any manner whatsoever. Therefore, whether a project should follow the steps in the act depends on the case-by-case interpretation. Thailand's experience with the act suggests some hindrance and confusion caused by the definition, classification, and procedures expressed by the law. Thus, there have been some attempts to amend particular aspects of the act such as the definition of

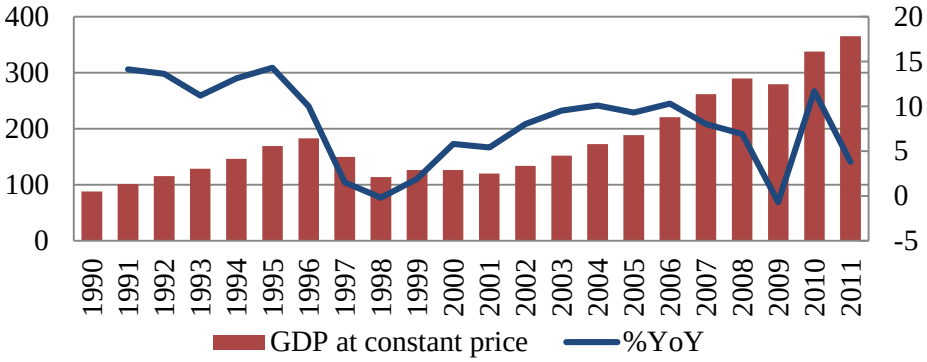
infrastructure projects in Thailand. Finally, Section 5 presents some issues and challenges in transport infrastructure financing via PPP.

Infrastructure Investment

Macroeconomic Statistics in Thailand

After slowing down in 1997-1998, Thailand's economy began to improve again. Figure 9.1 shows the growth in gross domestic product (GDP) during the 2000s except in 2009, which was partly due to the effect of the world economic crisis. The uptrend in Thailand's economy is expected to continue in future years.

Figure 9.1: Gross Domestic Product of Thailand (billion US$)

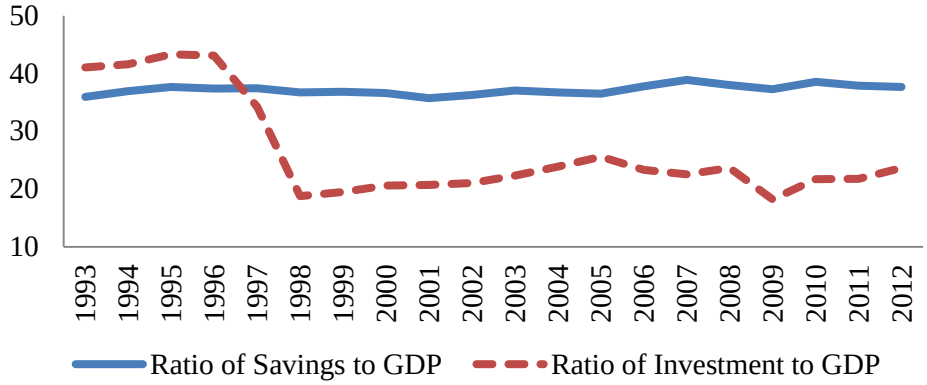


Source: Bank of Thailand.

Figure 9.2 presents the ratios on Thailand's national savings and investment to GDP. The savings-to-GDP ratio has been fairly stable at around 40 percent since 1993 while the national investment-to-GDP ratio remains low at around 20 percent, after dipping in the late 1990s. Therefore, as shown in Figure 9.3, Thailand saw a drop as well in its investments, both public and private, in physical infrastructure since the late 1990s. Table 9.1 presents Thailand's standing based on flow of funds indicators for the period 2007-2011.

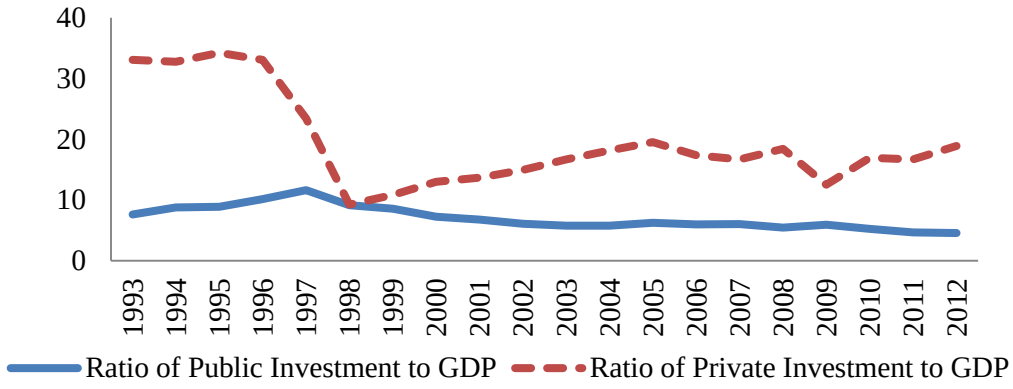
"participation" to include turnkey projects; the change in the minimum project value from 1 billion baht to 3 billion baht, etc.

Figure 9.2: Thailand National Savings and Investment to GDP, 1993-2012



Source: NESDB.

Figure 9.3: Thailand Public Savings and Investment to GDP, 1993-2012



Source: NESDB.

Table 9.1: Flow of Funds Indicators of Thailand

Indicators	2007	2008	2009	2010	2011
1. GDP growth (%)	5.4	1.7	-0.9	7.3	0.3
2. GDP at current price (US$ million)	261,510	289,557	279,287	337,530	364,727
3. Inflation rate (%)	2.3	5.5	-0.9	3.3	3.8
4. Investment growth (reference year 2002)					
- Private (%)	0.7	6.3	-17.4	16.7	9.0
- Public (%)	5.0	-8.3	8.9	-0.8	-8.6
5. Saving-investment gap to GDP (%)	6.0	0.7	7.9	3.9	1.5
- Non-financial Corporations Sector	-1.3	-4.1	3.9	-1.1	-2.1
- Financial corporations sector	1.9	1.4	2	2	0.6
- General government sector	0.4	-0.4	-2.6	-1.6	-0.4
- Households & non-profit Institution serving Households sector	4.9	3.8	4.5	4.5	3.4
6. Current account balance (US$ million)	15,598	2,020	21,996	9,863	5,924
7. Ratio of current account balance to GDP (%)	6.0	0.7	7.9	2.9	1.6
8. Net capital movement (US$ million)	-18,661	-11,777	-25,377	-6,295	-5,158
9. International reserve position (US$) mil	99,429	135,190	154,034	156,469	176,013
10. Loan ceiling (US$ million)	23,941	25,970	29,905	28,075	36,434
11. Change in public external debt	34,092	-134,537	-58,359	-16,469	2,232
- Government	-29,982	-19,588	-3,768	-2,375	-7,368
- State enterprises	64,074	-114,949	-54,591	-14,094	9,600

Source: Bank of Thailand, Ministry of Commerce, and NESDB.

As physical investment in Thailand has been low for quite a long while, it is about time to inject more into infrastructure as soon as possible so as to build up the country's capacity. Two main sectors in Thailand had seen much action in infrastructure investing: the energy and the transportation sectors.

Infrastructure Investment in Energy Sector

To encourage private investment in power generation, there were attempts to turn state enterprises into private companies. The idea was first conceived during the crafting of the Seventh National Economic and Social Development Plan (the Seventh Plan). Per the plan, the electricity sector would be liberalised to increase competition and to promote efficiency while reducing the weight of infrastructure expenditures on government's budget. To liberalise the power sector, the government took the following steps:

- Promoted Independent Power Producers (IPP) and Small Power Producers (SPP) starting in 1992;
- Issued a Cabinet resolution in 1996 to unbundle power generation, transmission and distribution activities of the Electricity Generating Authority of Thailand (EGAT), Metropolitan Electricity Authority (MEA), and Provincial Electricity Authority (PEA) and turned over these functions to various business units (BUs). The BUs will subsequently be corporatised and listed in the stock market;
- In 1998-2001, allowed EGAT to keep its single buyer role;
- In 2001-2003, allowed private power producers to make direct business contacts with customers by opening up EGAT's transmission lines to third parties' access;
- Beginning in 2003, full retail competition in power sector would be established via power pool. Also, an independent system operator and regulator would be established.

Note that after the change of government in 2001, the power pool plan was cancelled because the government deemed that this could potentially create price volatilities. However, the new government continued to pursue the

corporatisation plan of EGAT. It also established the Enhanced Single Buyer (ESB) scheme whereby EGAT would retain its monopoly on electricity purchase. In 2006, the privatisation of EGAT was suspended by the Supreme Administrative Court due to EGAT's violation of public hearing procedures. Since then, no administration has attempted to revisit the plan to liberalise EGAT, MEA or PEA.

However, the Seventh Plan has succeeded in promoting private investments in Thailand's Energy Security Initiative (ESI). There has been no shortage of interests from private investors, local and abroad, to invest in power plants of all sizes as IPPs, SPPs and very small power producers (VSPPs). Furthermore, all private investments had been under the Build-Own-Operation (BOO) agreement, therefore avoiding the lengthy procedures normally required by Private Participation in State Undertaking Act B.E. 2535.

Infrastructure Investment in Transport Sector

Overview of Transport Sector

So as to understand the crucial role of the transport sector in the Thai economy, it is worthwhile to look at the demand volume in each mode of transport in Thailand.

Thailand's freight transport can be divided by modes of transport: namely, road, rail, water, and air transport. Domestic freight volume in 2012 was 520 million tonnes. Of this, freight transport by road accounted for about 83 percent of all domestic freight traffic. Table 9.2 shows statistics on the domestic freight transport. In terms of total freight ton-kilometres transported domestically, freight transport by road accounts for an even bigger share—about 96 percent of all transportation modes.

Table 9.2: Thailand Domestic Freight Volume (million tons)

Mode of Transport	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Road	435	440	435	430	428	428	424	424	420	407	426
Railway	9	11	13	12	12	11	13	12	11	11	12
Inland waterway	31	30	43	42	40	47	48	42	48	47	47
Coastal shipping	28	27	37	34	32	31	36	36	37	41	35
Air	0.11	0.10	0.11	0.12	0.12	0.11	0.11	0.10	0.12	0.13	0.13
Total	**503**	**508**	**529**	**519**	**511**	**518**	**521**	**513**	**517**	**506**	**520**

Source: Ministry of Transport.

For international freight transport, most import/export of goods were via maritime transport. Table 9.3 shows that maritime transport accounts for almost 70 percent of international freight value while air transport comes second at around 25 percent of the international freight's value. When analysed by freight weight, maritime transport accounts for nearly 90 percent of the international freight. This means that air transport carried mostly high-value, low-weight goods while maritime carriers delivered low-value, high-weight items.

Table 9.3: Thailand International Freight Transport in 2011

Modes of Transport	Value of Trade (US$ Million)			Volume of Trade ('000 Tones)		
	Import	Export	Total	Import	Export	Total
Maritime transport	155,913	152,239	308,152	92,965	100,675	193,640
Road transport	13,547	19,548	33,095	12,689	10,779	23,468
Railway transport	21	326	347	13	133	146
Air transport	58,967	53,780	112,747	282	443	725
Mail, Parcel and others	271	297	568	2	1	3
Total	**228,719**	**226,190**	**454,909**	**113,618**	**102,996**	**216,614**

Source: Ministry of Transport.

Thus, the most important mode for domestic transport is by roadways while that for international transport is by sea. Railways play very little role in both domestic and international deliveries. Note that the international freight route

for rail transport is in the southern part of Thailand connecting to Malaysia.

Public Budget for the Transport Sector

The Ministry of Transport is the main agency that provides the transport infrastructure and regulates the sector. The focus of organisations within the Ministry of Transport can be grouped into four main categories; namely, the planning, policy, and administration; land transport; water transport; and air transport. The Office of the Permanent Secretary, and the Office of Transport and Traffic Policy and Planning comprise the planning, policy, and administration section. The rest are organised by transport modes and may either be government agencies or state enterprises. Table 9.4 provides the details on the organisations under the Ministry of Transport.

Table 9.4: Organisations Within the Ministry of Transport

Planning, Policy, and Administration	**Water Transport**
• Office of the Permanent Secretary • Office of Transport and Traffic Policy and Planning	Government Agencies
	• Marine Department
	State Enterprises
Land Transport	• Port Authority of Thailand
Government Agencies	**Air Transport**
• Department of Land Transport • Department of Highways • Department of Rural Roads	Government Agencies
	• Department of Civil Aviation
State Enterprises	State Enterprises
• Expressway and Rapid Transit Authority of Thailand • Bangkok Mass Transit Authority • Transport Company Limited • State Railway of Thailand • Mass Rapid Transit Authority of Thailand	• Civil Aviation Training Center • Airport of Thailand Public Company Limited • Thai Airways International Public Co.,Ltd. • Aeronautical Radio of Thailand Co., Ltd.

Generally, government agencies in each mode act as regulators as well as provide the necessary infrastructure. On the other hand, state enterprises usually provide transport services. In some cases, state enterprises may also provide infrastructure services. The roles of each organisation are included in Annex 1's discussion on the regulatory framework of Thailand's transport sector.

When it comes to public investment in the transport sector, Table 9.5 details the government budget for the Ministry of Transport's agencies. Note that some

state enterprises are not listed in the table because they operate on a commercial basis and are not regularly allocated a government budget.

Table 9.5: Allocated Public Budget for Transport Sector (US$ million)

Agency	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Average Annual Growth (%)
Policy & Planning	**3.5**	**3.4**	**6.7**	**7.6**	**9.1**	**17.0**	**37.3**	**25.8**	**24.0**	**27.5**	**26.0**	**26.2**	**54.77**
Permanent Secretary Office	3.5	3.4	3.4	3.7	4.8	7.2	8.7	9.8	9.8	10.1	12.6	11.3	**18.84**
Office of Transport & Traffic Policy & Planning	0.0	0.0	3.3	3.9	4.3	9.8	28.6	16.0	14.2	17.3	13.4	14.9	**35.58***
Land Transport	**1,336.1**	**1,143.0**	**1,661.3**	**1,753.3**	**2,133.5**	**2,332.6**	**2,639.9**	**2,453.7**	**2,770.6**	**2,259.1**	**3,464.4**	**3,643.7**	**14.39**
Dept of Land Transport	28.1	31.0	32.0	36.9	40.9	47.6	57.5	68.9	67.9	68.2	69.6	74.7	**13.83**
Dept of Highways	922.2	708.8	689.9	778.0	1,062.5	990.3	1,303.6	1,216.5	1,179.7	831.6	1,600.5	1,622.1	**6.32**
Dept of Rural Roads	0.0	0.0	336.2	376.2	441.1	565.3	516.8	518.7	695.1	644.1	858.6	952.1	**18.32***
Expressway Authority	118.9	114.4	253.6	230.6	213.2	213.4	292.3	251.9	274.3	221.7	266.7	144.4	**1.79**
Bangkok Mass Transit Authority	9.6	9.9	5.2	0.0	0.0	0.0	0.0	0.0	18.9	0.7	42.9	147.0	**n.a.**
State Railway	187.1	214.5	208.4	213.3	194.9	247.4	209.5	227.6	304.1	290.5	376.1	455.1	**11.94**
Mass Rapid Transit Authority	70.2	64.3	136.0	118.4	181.0	268.5	260.3	170.0	230.6	202.4	250.1	248.3	**21.13**
Water Transport	**116.2**	**61.3**	**46.1**	**56.7**	**61.5**	**85.5**	**103.3**	**111.6**	**108.7**	**105.2**	**131.6**	**146.9**	**2.20**
Marine Department	54.4	49.7	46.1	56.7	61.5	85.5	103.3	111.6	108.7	105.2	131.6	146.9	**14.17**
Port Authority of Thailand	61.8	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**n.a.**
Air Transport	**23.2**	**20.7**	**28.0**	**29.6**	**38.1**	**40.7**	**29.7**	**37.8**	**30.5**	**32.8**	**52.2**	**42.9**	**7.09**
Dept of Civil Aviation	21.8	19.1	25.8	27.1	34.9	35.7	22.9	27.2	26.9	26.7	44.3	36.4	**5.60**
Civil Aviation Training Centre	1.4	1.5	2.2	2.4	3.2	4.9	6.8	10.6	3.7	6.2	7.9	6.4	**30.76**
Total	**1,478.9**	**1,228.3**	**1,742.1**	**1,847.2**	**2,242.1**	**2,475.7**	**2,810.2**	**2,628.9**	**2,933.9**	**2,424.6**	**3,674.3**	**3,859.6**	**13.41**

*Note:** is average annual growth for 10 years.
Source: Ministry of Transport and Bureau of Budget.

Most of the government budget for the transport sector is for land transport and mainly allocated to road infrastructure agencies. The Department of Highways (DOH) and Department of Rural Roads (DRR) receive almost 70 percent of the total budget each year for construction and maintenance of roads. The budget assigned to the transport sector generally grows by around 7.7 percent annually, proof that the government still focuses on transport infrastructure development.

For road transport, the DOH and DRR are the key agencies. Only one state enterprise, Expressway Authority of Thailand (EXAT), provides road infrastructure services. Since the Ministry Of Transport has developed a Geographic Information System (GIS) for transport infrastructure in Thailand, road network data are coded into the system's database, which serves as a proxy of the road network's length. Table 6 indicates that the two main agencies, DOH and DRR, are responsible for around 64 percent of the network whereas local authorities account for 36 percent of the network.

Table 9.6: Length of Road Network in Thailand from GIS Database for 2009

Administrative Agencies	Route (km)	% of Road Length
Department of Highways	63,100	39%
Department of Rural Roads	39,255	25%
Road Inside the Municipality Area	16,274	10%
Road Outside the Municipality Area	41,286	26%
Total	**159,915**	**100%**

Source: Transport FGDS, Ministry of Transport.

For the railway infrastructure, the State Railway of Thailand (SRT) operates a network of 4,180 km of rail tracks that connect 46 provinces. The northernmost rail point is in Muang District, Chiang Mai Province, while the southernmost is in SuNgai Kolok District in Narathiwat province. The Muang districts of Nong Khai and Ubon Ratchathani provinces are the farthest northeastern points, while Map Ta Phut District in Rayong Province is the farthest eastern point. The westernmost point is at Sai Yok District in Kanchanaburi Province.

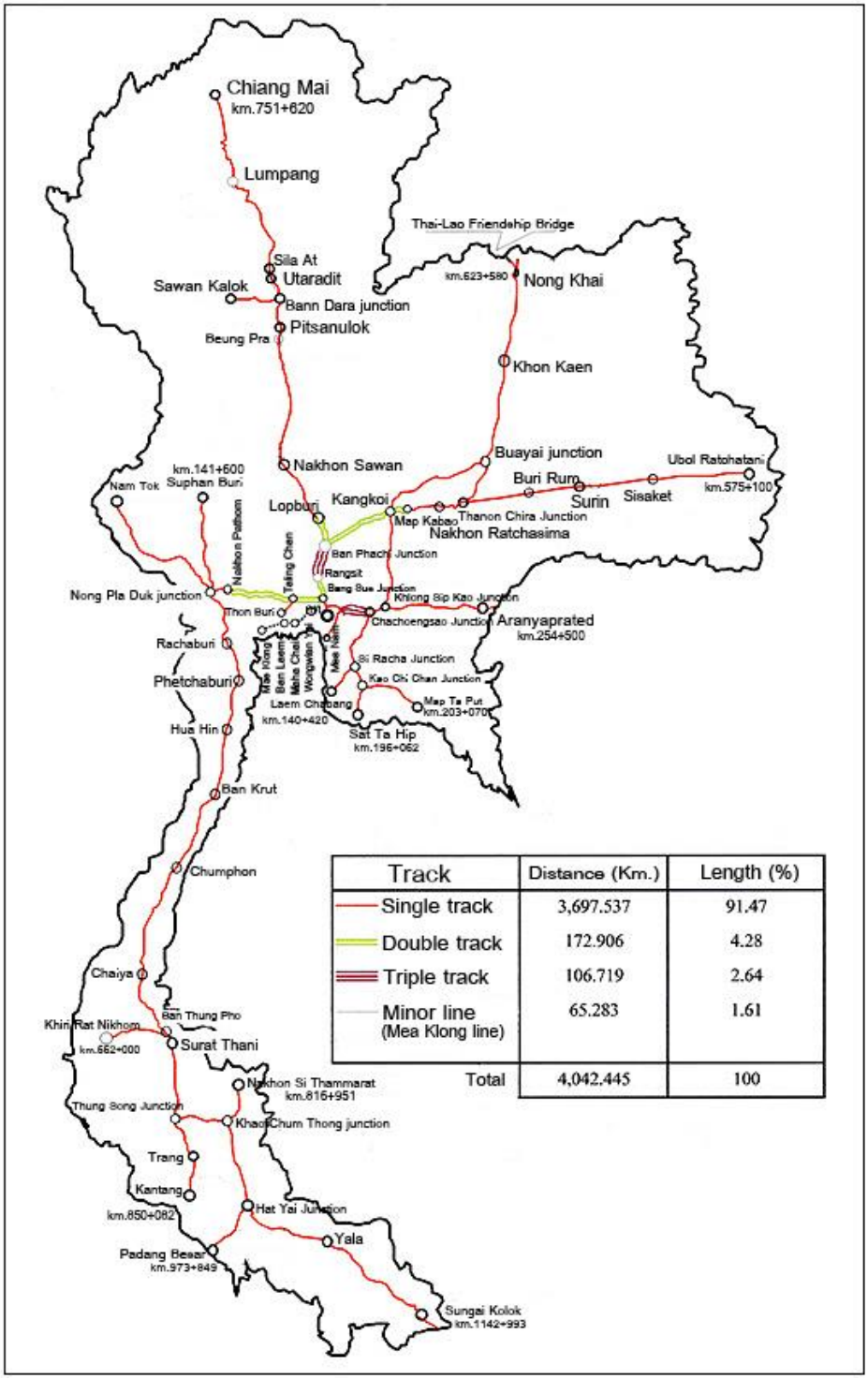
There is little development in terms of the network extension, as most projects were mere upgrades of some lines' single tracks into double tracks. There are currently three types of rail tracks: single, double, and triple tracks. Single tracks account for 3,901 km (93.3%) of total railways, while double and triple tracks constitute 220 km (5.3%) and 59 km (1.4%), respectively. The tracks have a width of one metre and can carry loads of 15-18 tons. Figure 9.4 shows the map of Thailand's whole railway network.

In general, rail routes have connections with highways and logistics facilities, but the most important hubs for distributing products are Bangkok Port, Laem Chabang Port, and Inland Container Deport (ICD) Lat Krabang. There are also rail connections with regional container storage areas such as Sila At District, Uttaradit Province; Tha Phra, Khon Kaen Province; Kudjik Station, Nakhon Ratchasima Province; and Ban Thung Pho, Surat Thani Province. These stations create logistics services in the form of hub and spokes; the road routes are used by feeders and trains as the trunk line for logistics over long distances. There are four rail routes that connect with neighbouring countries: Nong Khai station, which connects to Lao PDR; Aranyaprathet station, which links to Cambodia; and Padang Besar and SuNgai Kolok stations, which connect to Malaysia.

Thailand's water transport infrastructure involves a coastal length of around 2,614 km and domestic inland waterways of around 1,750 km. For the port infrastructure, the country has both international ports and coastal domestic ports. Of its eight deep-sea ports, the most important ones are Bangkok Port and Laem Chabang Port. Bangkok Port handles traffic of around 1 million TEU per year while Laem Chabang Port processes around 6.9 million TEU

per year. Both ports are operated by the Port Authority of Thailand (PAT).

Figure 9.4: Railway Network in Thailand



Source: Civil engineering division, SRT, 2008.

Thailand's air transport infrastructure features six international airports and 29 domestic airports. The international airports—namely, Suvarnabhumi Airport, Don Maung Airport (used for domestics flights only), Chiang Mai Airport, Chiang Rai Airport, Phuket Airport, and Hat Yai Airport—are the hubs for both domestic and international flights, with warehousing facilities for the transfer of goods through different transport modes. These are operated by the Department of Civil Aviation and the Airport of Thailand Company Limited (AOT). The Department of Civil Aviation operates most domestic airports while AOT manages and develops the six international airports. The AOT was corporatised from a state enterprise, the Airports Authority of Thailand (AAT) and then became a public limited company on 30 September 2002.

State Enterprises in the Transport Sector

State enterprises in the transport sector provide both infrastructure services and transport services. Some organisations operate for profit, while others do not because they are constrained by their mandate or public service duties. Currently, the Ministry of Transport has 13 state enterprises under its supervision, including five in the air transport sector, another five in the land transport sector, and two enterprises in the water transport sector.

According to the data collected by the National Economic and Social Development Board (NESDB), state enterprises under the Ministry of Transport lost about US$226.62 million in 2009. Most enterprises in the land transport sector, especially SRT and the Bangkok Mass Transit Authority, account for most of the deficit. Table 9.7 shows the overall financial status of these state enterprises.

Meanwhile, Table 9.8 presents the performance of selected state enterprises under the supervision of the Ministry of Transport. The enterprises performed considerably well except SRT and the Bangkok Mass Transit Authority.

Table 9.7: Overall Financial Status of State Enterprises of the Ministry of Transport (US$ million)

Item	Air Transport	Land Transport	Water Transport	Total
Revenue	7,800.99	1,025.53	298.91	9,125.43
Cost	7,418.64	1,692.02	241.39	9,352.06
Net Profit	382.35	-666.49	57.52	-226.62
Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA)	1,712.56	-62.13	111.07	1,709.98
Retained Income (RI)	1,291.39	664.31	76.73	2,032.43

Sources: NESDB (2009).

Table 9.8: Net Profits or Losses of Select State Enterprises for Land Transport under the Ministry of Transport, 2003 – 2007

Organisations	2003	2004	2005	2006	2007
State Railway of Thailand	-136.39	-194.03	-152.77	-168.80	-227.58
Port Authority of Thailand[1/]	37.31	45.66	48.06	35.77	67.65
Mass Rapid Transit Authority[1/]	-23.77	-112.37	-13.11	171.27	50.84
Expressway Authority of Thailand[1/]	23.06	30.59	17.04	56.92	37.85
Bangkok Mass Transit Authority[1/]	-78.91	-117.37	-131.78	-165.23	-170.17
Civil Aviation Training Center[1/]	-2.23	-0.54	-0.18	-0.33	-0.22
Transport Co., Ltd.[1/]	4.41	5.50	1.16	6.09	6.28
Thai Maritime Navigation Co., Ltd.[1/]	0.03	-0.56	-0.49	-0.58	0.09
Aeronautical Radio of Ltd.[1/ 3/]	0	0	0	0.01	0.01
Thai Airways International Plc.[2/]	n.a.	250.23	168.28	237.06	53.21
Airports of Thailand Plc.[2/]	n.a.	118.46	183.98	273.62	31.68

Note: State Enterprise Policy Office (SEPO), 2013.
Source: TDRI (2009).

The performances of state enterprises reflect the nature of their business. This also spells an opportunity for private investors to come in—where it makes sense, that is. If the business is profiting—for example, the expressway business—then chances are the private sector would want to be involve in the projects. Conversely, if the business is consistently losing, then a reform of the sector may be needed to identify which part of the business presents opportunities for private sector's participation, and which part necessitates public subsidy.

Infrastructure Financing

Infrastructure projects can be financed by either the national budget or external sources.

National Sources

There are four types of internal financing sources for transport infrastructure: government budget, state enterprise's income, government loan, and private investment participation. Table 9.9 shows investment plans for transport infrastructure of select organisations under the Ministry of Transport for 2011-2020, based on data from the Office of Transport and Traffic Policy and Planning (2011). Most projects are financed by the government's budget, followed by government loan, and then by private financing participation. The Mass Rapid Transit Authority (MRTA) has the highest number of project financing by combining government loan and budget with private investment participation. The DOH and SRT are also financed by private participation but the highest proportion of financial investment comes from government loan (SRT) or government budget (DOH).

Table 9.9: Thailand Land Transport Infrastructure Investment Details of Selected Organisations under the Ministry of Transport Plan in 2011-2020

Organisation	Financing in Fiscal Year 2011-2015 (US$ million)					Financing in Fiscal Year 2016-2020 (US$ million)					Total
	Gov't Budget	State Enterprise	Gov't Loan	PPP	Total	Gov't Budget	State Enterprise	Gov't Loan	PPP	Total	
Dept of Land Transport	**243**	**0**	**0**	**0**	**243**	**93**	**0**	**0**	**0**	**93**	**336**
Number of projects	6	-	-	-	6	-	-	-	-	0	6
Dept of Highways	**4,184**	**0**	**0**	**3,537**	**7,721**	**5,052**	**0**	**0**	**4,618**	**9,670**	**17,391**
Number of projects	11	-	-	1	12	5	-	-	1	6	11
Dept of Rural Roads	**1,710**	**0**	**0**	**0**	**1,710**	**1,923**	**0**	**0**	**0**	**1,923**	**3,633**
Number of projects	8	-	-	-	8	5				5	8
State Railways	**1,305**	**0**	**7,962**	**0**	**9,267**	**0**	**0**	**2,814**	**804**	**3,618**	**12,885**
Number of projects	2*	-	24	-	24	-	-	6	1	7	27
Expressway Authority	**188**	**0**	**0**	**0**	**188**	**0**	**0**	**0**	**0**	**0**	**188**
Number of projects	1	-	-	-	1	-	-	-	-	0	1
Mass Rapid Transit Authority	**1,080**	**0**	**7,117***	**1,832**	**10,029**	**8**	**0**	**4,441**	**59**	**4,508**	**14,538**
Number of projects	8		8	5	21	4	-	7	4	15	8
Bangkok Mass Transit Authority	**0**	**767**	**31**	**0**	**799**	**0**	**1,023**	**0**	**0**	**1,023**	**1,822**
Number of projects	-	1	2	-	3	-	1	-	-	1	3
Transport Co., Ltd.	**0**	**170**	**0**	**0**	**170**	**0**	**16**	**0**	**0**	**16**	**187**
Number of projects	-	1	-	-	1	-	1	-	-	1	1
Marine Department	**393**	**0**	**259**	**0**	**651**	**52**	**0**	**209**	**0**	**262**	**913**
Number of projects	16	-	2	-	16	2	-	2	-	2	16
Dept of Civil Aviation	**24**	**0**	**0**	**0**	**24**	**0**	**0**	**0**	**0**	**0**	**24**
Number of projects	5	-	-	-	5	-	-	-	-	-	5
Port Authority	**0**	**97**	**0**	**0**	**97**	**0**	**223**	**772**	**0**	**995**	**1,092**
Number of projects	-	3	-	-	3	-	2	1	-	2	3

Organisation	Financing in Fiscal Year 2011-2015 (US$ million)					Financing in Fiscal Year 2016-2020 (US$ million)					Total
	Gov't Budget	State Enterprise	Gov't Loan	PPP	Total	Gov't Budget	State Enterprise	Gov't Loan	PPP	Total	
Aeronautical Radio of Thailand Co., Ltd.	**227**	**60**	**0**	**0**	**287**	**0**	**0**	**0**	**0**	**0**	**287**
Number of projects	4	2	-	-	4	-	-	-	-	-	4
Thai Airways Intl Plc.	**0**	**2,958**	**0**	**0**	**2,958**	**0**	**1,449**	**0**	**0**	**1,449**	**4,407**
Number of projects	-	3	-	-	3	-	1	-	-	1	3
Airport of Thailand Plc	**0**	**1,447**	**383**	**0**	**1,830**	**0**	**188**	**178**	**0**	**366**	**2,196**
Number of projects	-	2	1	-	2	-	1	1	-	1	2
Total	**9,354**	**5,500**	**15,752**	**5,369**	**35,976**	**7,128**	**2,899**	**8,415**	**5,482**	**23,923**	**59,899**
	61	**12**	**37**	**6**	**98**	**17**	**6**	**17**	**6**	**32**	**104**

Note:* means financial sources of one project are not diversified.
Source: Office of Transport and Traffic Policy and Planning (2011).

External Sources of Financing

Based on the fiscal budget for 2012, total public debt as of 30 June 2012 is mostly internal debt. Specifically, 98.65 percent of government debt and 76.71 percent of state enterprise debt are internal debt (Table 9.10).

If one were to drill down, one can see that the internal public debt for the same period is US$129,304 million (Table 9.11), of which 86.07 percent are direct government internal debt (or US$111,295.8 million) and 13.93 percent are state enterprise internal debt (or US$18,008.2 million). In Table 9.11, internal financing sources are either the Bank of Thailand, commercial banks, and those that fall under Others.

External public debt as of 30 June 2012 amounts to US$6,825.7 million, which consists of the US$1,485.4 million external debt of the government and the US$5,340.3 million external debt of state enterprises. Table 9.12's external financial institutions are Japan International Cooperation Agency (JICA), foreign financial markets, Asian Development Bank (ADB), and World Bank. Most (78.24%) of the total external debt is owned by state enterprises.

In the transport sector, most state enterprises (i.e., except MRTA and AOT) are likewise financed by external debt, as shown in Table 9.13.

Table 9.10: Thailand Public Debt as of 30 June 2012 (US$ million)

Types of Debt	Government	State Enterprise	Total
Internal Debt	111,295.8	18,008.2	129,304.0
	(98.65%)	(76.71%)	(94.87%)
External Debt	1,521.1	5,468.5	6,989.6
	(1.35%)	(23.29%)	(5.13%)
Total	112,816.9	23,476.7	136,293.6

Source: Bureau of Budget (2012).

Table 9.11: Thailand Internal Public Debt as of 30 June 2012 (US$ million)

Sources	Government	State Enterprise	Total
Bank of Thailand	11,877.2 (81.86%)	2,631.3 (18.14%)	14,508.5
Commercial Bank	27,106.4 (87.75%)	3,782.6 (12.25%)	30,888.9
Others	72,312.3 (86.18%)	11,594.3 (13.82%)	83,906.6
Total	111,295.8 (86.07%)	18,008.2 (13.93%)	129,304.0

Source: Bureau of Budget (2012).

Table 9.12: Thailand External Public Debt as of 30 June 2012 (US$ million)

Financial Institution	Government	State Enterprise	Total
JICA	789.1 (13.27%)	5,156.90 (86.73%)	5,946.00
Foreign Financial Market	418.4 (93.87%)	27.3 (6.13%)	445.7
ADB	200.1 (100.00%)	-	200.1
World Bank	63.4 (100.00%)	-	63.4
Others	14.4 (8.45%)	156.1 (91.55%)	170.5
Total	**1,485.4** (21.76%)	**5,340.3** (78.24%)	**6,825.7**

Source: Bureau of Budget (2012).

Table 9.13: Proportion of Internal and External Debts in Selected Land Transport Sector's State Enterprises (US$ million)

Organisation	Types of Debt	Dec 2010	Dec 2011	Dec 2012	Mar 2013*
Bangkok Mass Transit	External	0	0	0	0
	Internal	1,937.05	2,328.39	2,319.66	2,460.21
Expressway Authority of	External	0	0	0	0
Thailand	Internal	2,255.18	2,051.95	1,659.56	1,718.31
Mass Rapid Transit	External	2,361.68	2,845.89	2,486.39	2,305.83
Authority	Internal	94.15	32.80	32.17	33.50
Port Authority of Thailand	External	0	0	0	0
	Internal	0	0	0	0
State Railways of Thailand	External	137.47	140.95	107.95	94.75
	Internal	2,929.78	3,439.18	3,543.55	3,789.96
Aeronautical Radio of	External	0	0	0	0
Thailand Co., Ltd.	Internal	174.66	159.31	148.39	153.10
Airport of Thailand Plc.	External	1,870.33	1,981.64	1,547.44	1,385.48
	Internal	0	0	0	0
Thai Airways International	External	0	0	0	0
Plc.	Internal	2,538.31	2,728.13	2,763.76	2,804.46
Civil Aviation Training	External	0	0	0	0
Centre	Internal	0.69	0	0	0

Source: Public Debt Management Office.

Public Private Participation: Thailand's Participation

The private sector's participation in PPP projects in the transport sector was predominately in three sub-sectors: the toll road/expressway, mass transit, and port projects. Most are concession projects from state enterprises EXAT, MRTA, and PAT. Only two projects are under the government agencies: the Don Muang Tollway Project under DOH and the BTS project under the Bangkok Metropolitan Authority.

Past PPP Projects

Table 9.14 summarises the PPP projects in the transport sector:

Table 9.14: Thailand PPP Projects in the Transport Sector

Project	Agency	Project Description	Cost (US$ billion)
Toll Road and Express Way			
Si Rat Expressway, 2nd Stage (BECL)	Expressway Authority of Thailand	Build-Transfer-Operate (BTO). Consists of four sections around Bangkok and urban areas; 37 km	0.77
Burapavitee Expressway (Bang na – Bangpakong) – (BBCD)	Expressway Authority of Thailand	Build-Transfer-Operate (BTO)	0.77
Udornrataya Expressway (Bang pa in – Pak ket) – (BECL)	Expressway Authority of Thailand	Build-Transfer-Operate (BTO)	0.48
Don Muang Tollway	Department of Highways	Design-Build-Operate- Maintain (DBOM); Central to North Bangkok, 28 km	0.39
Mass Transit			
BTS Skytrain and its extension	Bangkok Metropolitan Authority	Build-Own-Transfer (BOT) *Dark Green Line:* 17 km *Light Green Line:* 6.5 km	1.67
Metropolitan Rapid Transit Chaloem Ratchamongkhon Line, MRT Blue Line (BMCL)	Mass Rapid Transit Authority	Design-Build-Operate- Maintain (DBOM) *Line:* Bangsue-Hualamphong, 20 km	4.05
Port			
Leam Chabang Port	Port Authority of Thailand	Lease contracts, Build-Transfer-Operate Eight deep sea ports nationwide in Bangkok and Eastern Seaboard	0.03 (per port, estimation)

Note: 31.0848 Baht for 1 US$.

Projects in these sub-sectors proved to be considerably successful in terms of the operation and the investment of the private sector. Although some faced financial difficulties during their early phases because of the overestimated demand (which will be discussed in the next section), all projects survived.

It should be noted, however, that except for the mass transit, there is no PPP project in the railway transport sector. The government has plans to

implement the PPP arrangements in the railway sector, but unless reforms in the said sector are not realised, the private participant's role will remain uncertain. To remove this impasse, clear policies on how to reform the railway sector are needed.

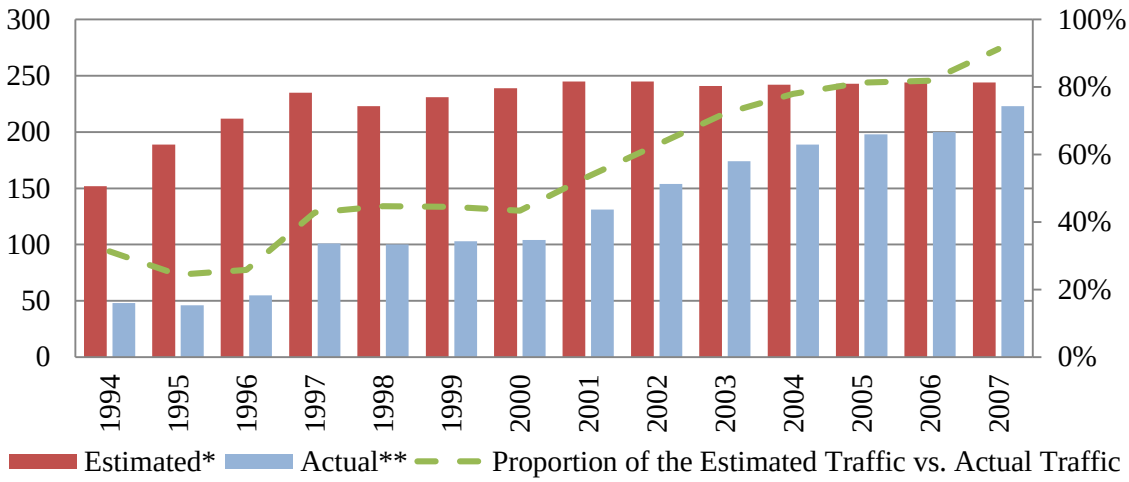
Lessons from the PPP projects

There are three main issues that can be regarded as important lessons from past PPP projects. These issues are demand prediction, system integration, and inconsistent transport policy.

Forecasts on Demand. During the planning process of any transport sector mega-project, the estimated demand would generally be very high. This is true for toll road projects, and more so for mass transit projects.

Figure 9.5 compares the estimated and actual traffic volume of the Sri Rat Expressway. It shows that it took more than 10 years before the actual traffic reached 80 percent of the estimated traffic volume for the expressway. Although this graph now predicts with more confidence that the actual volume will eventually exceed the estimated volume in the near future, it still drives home the message that care should always be taken in the way traffic is estimated. Predicting the demand is part of the issue of risk allocation. After all, traffic volume is closely related to the expressway's toll level and other government policies.

Figure 9.5: Comparison between Estimated and Actual Traffic Volume of the Sri Rat Expressway



Note: *Estimated traffic volume taken from the annex of the concession contract of the Expressway Stage 2 (million trips per year)

** Actual traffic calculated from the EXAT annual report and adjusted to the passenger car unit (pcu) (million trips per year)

The problem of demand prediction seems to be more serious in the mass transit project. Table 9.15 presents a comparison between estimated and actual passenger volume of the Metropolitan Rapid Transit Chaloem Ratchamonkhon Line (MRT Blue Line). Recent actual traffic volume stands at around 200,000 trips per day and is expected to growth at only 4 percent annually. This number is less than 30 percent of the estimated traffic volume. Table 9.15 also shows that from 2003 to 2009, the actual passenger volume was equivalent to about 21 percent to 28 percent of the estimated volume. Thus, nowhere will the estimated passenger volume be reached within the concession period.

Table 9.15: Comparison between Estimated and Actual Passenger Volume of Metropolitan Rapid Transit Chaloem Ratchamongkhon Line

		2003	2004	2005	2006	2007	2008	2009
Passenger volume per day (thousand trip)	Estimated*	430	520	600	650	680	790	630**
	Actual*	-	147***	163	158	164	170	174
Proportion of the Estimated Volume vs. Actual Volume			28%	27%	24%	23%	21%	28%

Note: * Estimated traffic volume taken from the annex of the concession contract and actual traffic taken from BMCL Annual report
** Traffic forecast in year 2009 is lower than in 2008 because the State Railway of Thailand (SRT) mass transit project (Red Line) was assumed to start its operations that year.
*** 2004 is the first year of operation (182 days).

Reasons for the overestimated demand for the transport project may be two-fold. First, the transport demand model was still unfamiliar with the new types of transport projects. This is the case for both the expressway and mass rapid transit projects. Traffic along the Sri-Rat Expressway was expected to rise rapidly because of the economic boom in the early 1990s—around the time the expressway was being built. However, because both the land use and economic activity were not well represented in the transport model—and later, because the economy reversed after the 1997 crisis—the actual traffic volume came out lower than the estimated demand.

Second, in the case of the mass transit project, demand was initially overestimated because during the time of the project's feasibility study, no mass transit system was operating in Bangkok—reason enough for stakeholders to assume that many passengers will shift from both car and bus, to the mass transit system. This was later found to be not the case, and the revised forecasts on the volume seem to have finally factored this in. The Office of Transport and Traffic Policy and Planning expected that volume for the Blue Line in 2008 would be about 197,000 passenger-trips

per day. For 2014, the expected passenger volume is about 373,000 passenger-trips per day.

There were lessons learned from the Blue Line project's failure to reach the expected demand, and government eventually was able to drive back the private sector into the mass transit project. The concession contract for the new Purple line is now redesigned. That is, from what was initially a Net Cost contract, where the operator has to bear the risk of passenger-volume, the concession agreement shifted to the Gross Cost contract, where the operator will bear the risk for the operating cost only (i.e., factor input price and management risk of the system). The public transport authority, i.e. MRTA, will be responsible for the fare collection and bear the deficit in the project—i.e., the different between operating cost and fare revenue—which hopefully will be covered by the government budget.

The question around project feasibility when the passenger volume cannot be accurately predicted has always been asked. The weakness in the reliability of the transport model is due to several reasons, including the assumptions made and the data used in calibrating the model. Assumptions made in the model in each study vary depending on the study's purpose. Critical assumptions are on economic growth (employment numbers), land use change, transport cost change (i.e., change of fuel price and car tax), and price of public transport (bus fare and mass transit fare). These assumptions produce various outcomes that can make or break the project.

Furthermore, data used in the model are usually from *ad-hoc* surveys, which is in contrast to international cities' (such as London and Hong Kong) practice of implementing a detailed travel survey every five years. One advantage of such regular surveys to these international cities is that these provide information useful in calibrating and updating countries' transport models. Thus, for Thailand, its current transport model should be used with caution when attempting to do a feasibility study in the future, particularly if there is no major update in its data collected.

System integration. Transport is all about the network. The benefit from transport infrastructure spreads when different projects' infrastructure is interconnected seamlessly. For now, the PPP projects, especially in the

mass transit sector, are done piece by piece or project by project, without any careful plan for system integration. For example, the BTS and MRT Blue Line, which have been operating for more than five years together, could not even get the common ticketing system in place. Such lack of integration reduces the benefits to customers and private sector investors as well as the potential revenue from the network effect.

Inconsistent Transport Policy. All transport modes in the country are connected in terms of the impact on each other. A policy change in one transport mode can affect the demand for other modes. For example, the implementation of the free bus rides in Bangkok may reduce the volume of passengers taking the mass transit system. A drop in the fuel tax may induce more expressway traffic and, in turn, cut the number of passengers taking the mass transit system. Thus, any transport policy must be consistent and reasonable in terms of its impact on the whole transport system. A mechanism where projects' private sector participants are compensated for every discriminatory change the government makes on its policies should be in place.

Issues and Challenges

In the offing are Thailand's PPP master plan and committee that will play a key role in determining PPP projects for various sectors. The regulatory framework for each industry, especially the sector monopolised by state enterprises, has to change to promote more competition and increase the private sector's role. One of the expected results is an improved planning process, including the quality of the project feasibility study.

Also, B.E. 2556 (the latest act on PPP) replaces B.E. 2535. Table 9.16 compares the two directives and highlights the disadvantageous provisions in B.E. 2535.

The State Enterprise Policy Office (SEPO) is working on the PPP intelligence plan with consultants and on centralising some government

projects, especially those in the transportation sector. The next PPP plan will focus on social welfare projects such as education and public health since there are no current plans in place yet.

Table 9.16: The Comparison between the Act on PPP B.E. 2535 and 2556

Problems of Private Participation in State Undertaking B.E. 2535	Advantages of Private Participation in State Undertaking B.E. 2556
All government projects are not centralised by any specific authority.	PPP B.E. 2556 directs that all projects with private participants be centralised by the SEPO from October 2013. Examples of these projects are BTS, Don Muang Toll way, and Bang Yai-Kanchanaburee motorway.
There were some problems in law enforcement and interpretation, especially project value calculation in PPP projects' defining process by the Office of the Council of State (i.e., no standardised way of interpretation).	The new act on PPP B.E. 2556 provides clearer means for law enforcement and interpretation, allowing SEPO as an authority to interpret consistently all regulations. The new law defines PPP project by the involvement of the private sector in every types of contracts instead of project value. However, the less-than-billion baht projects are reconsidered by other criteria. The new act on PPP B.E. 2556 attempts to enact ancillary laws to be more straightforward by including relevant projects in all sectors, and then consider the project value.

Problems of Private Participation in State Undertaking B.E. 2535	Advantages of Private Participation in State Undertaking B.E. 2556
The improvement of the act on PPP B.E. 2535 was temporary. Project participants struggled with abiding by B.E. 2535 as early as the infrastructure planning phase since the regulation dictates that the project be operated and authorised by the government sector. Thus, private sector lost its opportunity to invest and share the risks from the beginning. This was the case of the project in the southern expressway and of the Airport Rail Link project.	The PPP B.E. 2556 adopted many best practices on PPP from foreign countries such as creating a master plan or intelligence plan, calculating by value-for-money method between government and private sectors, and having a governance structure.

Source: Interviews with State Enterprise Policy Office (2013).

However, the PPP master plan still has some constraints that need to be resolved:

- All projects in rural areas were not included in the plan since the local authorities were required to first propose their projects to their ministries before reporting such to the SEPO, making their process too meticulous. Such has to be redesigned for the next master plan;
- Many transportation regulators, especially those on the railway system, have unclear authority to define planning, management, pricing, and subsidy; and
- Government officers still misunderstand about the concept of PPP.

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Annex 1: Regulatory Framework of Transport Infrastructure

The regulatory structure of the transport sector can be divided into three aspects: policy, regulation, and service operations. Generally, the Ministry of Transport and the Office of Transport and Traffic Policy and Planning are responsible for the policy, planning, and administration of all modes of transport. Meanwhile, each mode of transport has its own regulation and service operation structure. Table 9.A.1 shows details on the regulatory framework of the transport sector in Thailand.

Table 9.A.1: Regulatory Framework of the Transport Sector in Thailand

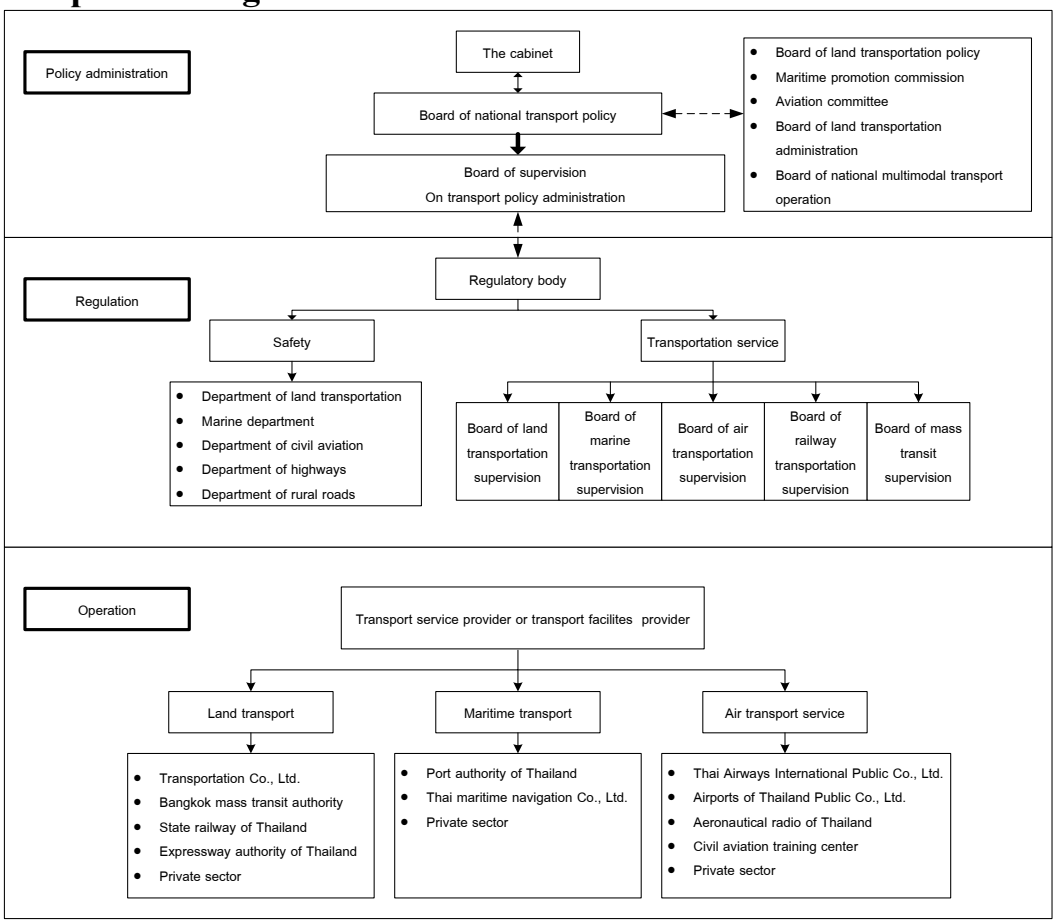
Agency	Policy	Regulation	Services Operation
Policy and Planning in all modes			
Ministry of Transport (Office of the Permanent Secretary)	√		
Office of Transport and Traffic Policy and Planning	√		
Land Transport			
Department of Land Transport		√	Some Passenger Terminals
Department of Highways		√	Infrastructure Services
Department of Rural Roads			Infrastructure Services
Expressway and Rapid Transit Authority of Thailand		√	Infrastructure Services (Tolled Road)
Bangkok Mass Transit Authority		√	Transport Services (Passenger)
Transport Company Limited		√	Transport Services (Passenger)
State Railway of Thailand		√	Infrastructure and Transport Services (Freight and Passenger)
Mass Rapid Transit Authority of Thailand		√	Infrastructure and Transport Services (Passenger)
Water Transport			
Marine Department		√	Infrastructure Services
Port Authority of Thailand		√	Infrastructure Services
Air Transport			
Department of Civil Aviation		√	Infrastructure Services (Regional airports)
Civil Aviation Training Centre			√
Airport of Thailand Public Company Limited		√	Infrastructure Services (International Airports)
Thai Airways International Public Co. Ltd.			Transport Services (Freight and Passenger)
Aeronautical Radio of Thailand Co. Ltd.			√

Source: Adapted from NESDB and World Bank (2008).

In general, government agencies are the regulators in certain areas of their sector. For example, the Department of Highways is both the regulator of the highway use and the infrastructure service provider as well. Likewise, state enterprises could be both regulator and operator. Conflicts, however, can arise if a state enterprise competes with private providers in offering transport services.

Recently, the Ministry of Transport has undertaken reforms in the transport sector. It began the process of separating its administrative functions into policy planning, regulations, and service provisions so as to increase its efficiency in resource management and in enhancement of domestic competition. Such is expected to bring better transport services quality, which is crucial in strengthening local service providers' competitiveness *vis-a-vis* their foreign counterparts. Figure 9.A.1 shows the structure of the transport sector as specified in the Transport Management Act approved by the Thai Cabinet on 5 June 2007.

Figure 9.A.1 Structure of the Transport Sector Per the Proposed Transport Management Act



Source: TDRI (2009).

In the proposal, the regulator is separated from the operator, especially for the transport service operation, where competition should promote efficiency in the market.

At the same time, the Ministry of Transport also attempted to restructure the railway market. It was aware that the State Railway of Thailand (SRT) has long history as the country's sole railway operator has made it difficult for private involvement to be realised.

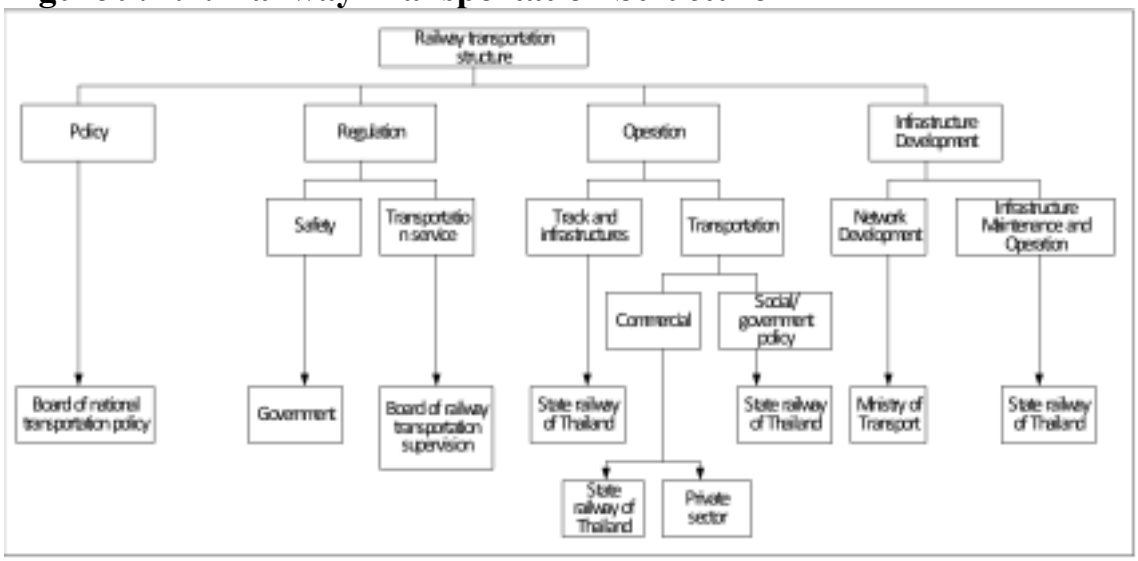
On 24 July 2007, the cabinet approved the principal framework of the railway sector, which called for separating government's role in developing the country’s railway sector from the SRT's other functions. The government will allocate a budget for network development such as

double track construction, new network construction, track improvement and signalling improvement in new networks, while the SRT will account for Infrastructure Maintenance and Operation (IMO). Besides the SRT, the private sector may provide railway services as well. Both the government and SRT will determine the subsidy and budgeting frameworks to support the Public Service Obligation of the railway transport service.

Moreover, on 25 September 2007, the Cabinet approved in principle the proposed State Railway of Thailand Act. The proposal restructures the market of the railway transport service so as to allow competition in land, maritime, and air transport. The SRT will separate its activities and revenues related to rail transport from those related to rail services. For the first time, SRT will be able to run a new business and earn additional revenue from the use of railway tracks such as rail access charges, which are similar to expressway toll fees. Moreover, the proposed act confirms SRT's right to receive subsidy as compensation for losses incurred from having to provide services as directed by the Public Service Obligation or other special government policies.

Figure 9.A.2 illustrates the organisation of the railway sector as proposed in the Act and approved by the Cabinet.

Figure 9.A.2: Railway Transportation Structure



Source: TDRI (2009).

However, the reform of the transport sector continues to be a challenge. The bill on the Transport Management Act is pending approval of the parliament. The process of creating a clearer regulatory structure is not yet complete. Thus, the current regulatory structure is the one still in place. The scenario where there is private sector participation has to be based on the current structure, at least for the time being.

The Railway Reform Study (TDRI, 2009) proposes further details on the railway reform process. In the past, SRT's performances on passenger and freight transport had declined and its debts had risen. To increase Thailand's competitiveness, rail transport as an essential mode in the logistics system should reduce overall logistics cost. In reality, SRT had done little toward this objective. Ergo, the railway reform should first look at restructuring SRT. Eventually, the restructuring process proceeded through the cooperation of the Ministry of Finance and the Ministry of Transport.

In the initial phase of the reform, a subsidiary company will be established under the restructuring plan, to perform passenger services (both commercial and social services) and freight services, the operation of Airport Rail Link project (ARL), and to operate the new Red Line route. Another subsidiary company will also be established to manage the assets not associated with the railway infrastructure.

Along with the structural changes are the personnel movements that need to be considered as well. Human resource departments of the government and SRT need to identify and manage the possible transferees who are a good fit for the roles and responsibilities in the new structures, as well as the SRT staff who cannot be transferred elsewhere. The transfer of SRT's personnel will be done on a voluntary basis. Regulations regarding the access to infrastructure will be arranged, including the access charge rate.

At the ministerial level, the Department of Railways will be established and directed to set up the strategic vision for railway development and to allocate resources to improve railway infrastructure.

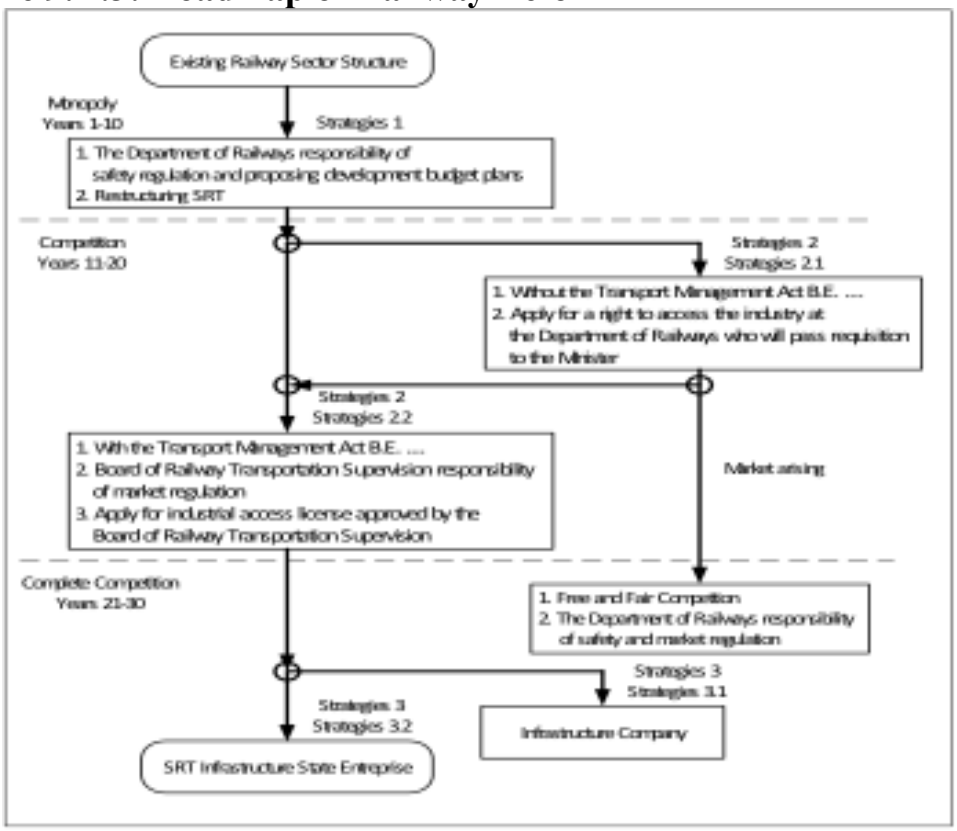
In the later phase, the railway reform aims for a competitive railway market. That is, the private sector will have opportunities to develop the

railway infrastructure along with the public sector as well as operate railway services, both for passengers and for freight.

An overview of the important aspects, observations, and conditions at different points in time according to the strategies are outlined below. The roadmap on how to reform the railway transportation system, along with the regulations and other details, are presented in Figure 9.A.3.

Shortage Phase. According to Strategy 1, the reform of the country's railway system will initially entail establishing the Board of Railway Transportation, which will then take charge of overseeing all policy and budgetary matters on railway infrastructure. Its foundational structure will include Policy Management, Budgetary and Financial Management, and Infrastructure Management, including the set up, monitoring and evaluation of safety standards. In establishing this board, it is important to seek out qualified personnel with technical expertise and knowledge from the Ministry of Transport, Ministry of Finance, as well as the SRT.

Figure 9.A.3: Roadmap of Railway Reform



Source: TDRI (2009).

The setup of the Board of Railway Transportation also entails introducing a State Administration Act to establish the Department of Railways. The implementation of the act, which will undergo the process of outlining necessary laws and require the participation of the government's Cabinet, is expected to take time. Therefore, from the initial meeting of all relevant parties, it was recommended that either the Department of Highways or Department of Rural Highways—which are part of the Ministry of Transport—handle responsibilities related to the engineering aspects of the railway system for the meantime that the Cabinet has not yet approved the establishment of the Board of Railway Transportation.

However, upon the advisory committee's review of the functions of the Department of Rural Highways, it found that the department already had sufficient authority and responsibilities over the development and renovation of state highways. Should it be decided that the Department of Rural Highways should take up the responsibility of developing the country's railway infrastructure as well, it could find itself with more work than it could handle, given that it has limited personnel with skills and knowledge needed for such tasks.

Therefore, the Ministry should push for the Cabinet's approval on the act to establish the Department of Railways within the first year and the Board of Railway Transportation within three years as outlined in Strategy 1. This will also involve setting the responsibilities for the railway system's infrastructure development, and transferring SRT personnel who have the required knowledge and expertise to the new entity.

On the other hand, the state's responsibility is to develop the railway system's infrastructure by hiring private sector businesses to undertake the construction side of projects. This would require creating contracts based on the work that needs to be done; for example, constructing the base of the rails, laying down the rails, and setting up appropriate transportation communication channels and systems. To ensure that the businesses hired to undertake such tasks are qualified and efficient and that competition and pricing are fair, the Ministry can set up a special unit to take care of the initial implementation of the railway reforms.

Meanwhile, there is some urgency to restructure the SRT organisation into one where its management now represents two subsidiary companies—one to handle public transportation; and the other to serve as an asset management company—and where the infrastructure unit is separated from the operations unit. This activity will be in line with the proposal that the State Enterprises Policy Committee presented during a Cabinet meeting on 3 June 2008 and was approved.

Initial Competition Phase: Strategy 2, approach 2.2 in Figure 9.A.3 involves encouraging the private sector to participate in and manage the operations unit of the railway system. However, such cannot succeed without first pushing for the approval of the Transport Management Act. The strategy also requires setting up a management board to take care of economic aspects such as issuing licenses for private sector businesses, while ensuring fair competition so as to attract private sector participants.

Should the approval of the Transport Management Act be not happening anytime soon, the Ministry of Transport can proceed to Strategy 2 approach 2.1 by tapping the Board of Railway Transportation to take its cause up to the government Cabinet level and to seek the latter's go-ahead to involve the private sector in the operations of the railway system. The point is that even without the Transport Management Act, the private sector can still be involved in railway system projects while SRT takes charge of hiring railway operators. In the event that demand for freights transportation increases, the market becomes bigger, thus attracting more private businesses to come and compete. Such can be the positive outcome of railway reforms.

Competition Phase: In carrying out Strategy 3 in Figure 9.A.3, approach 3.2 involves clearly delineating roles and responsibilities. To effect this, the railway system's infrastructure unit should be separated from the system's operations unit. The infrastructure unit can then be renamed to SRT Infrastructure State Enterprise while the operations unit can be managed by one of SRT's subsidiary companies and SRT assumes its role as the holding company.

The new structure as well as the clearly defined roles and responsibilities

will enhance transparency and help create a healthy competition with the private sector. It will also allow the organisation to better respond to current and future market situations. On the other hand, there might be some challenges involved in changing the laws and dealing with resistance from SRT's personnel who feel unsure about their security of tenure during the organisational change.

Should there indeed be resistance from SRT's personnel, the restructuring can proceed under Strategy 3, approach 3.1. Under this strategy, the infrastructure unit will be split from the original structure and turned into a subsidiary company. One possible downside of such a organisational change is that conflict of interests might ensue. For example, the reaping of benefits between businesses within the organisation can cause discriminatory practices.

In conclusion, reforming the railway system enhances its competitiveness with other transportation modes and increases organisational efficiency. If one were to drill down to the root causes of the system's problems, one can trace it to the lack of development in the sales side. These problems also steam from the weak government support in developing the railway system. Reforming the railway system is one of the solutions to these problems, although it requires a government that is ready and driven to undertake such reform. Thus, clarity of the roles and responsibilities of all agencies involved is an all-important prerequisite. An agency that oversees the investment of the railway structure (similar to the function of the agency in charge of the country's road construction) has to be created, leaving the SRT to focus on overseeing all operations.

Annex 2: Forms of Private Participation

Although the Public–Private Partnership (PPP) provides technical and financial benefits for the government, it will change the government's traditional role from provider of public services to that of a regulator and provider of support for the PPP projects. However, the level of private involvement depends very much on the type of PPP scheme. According to the World Bank (2001), PPP can generally be structured into six contract types: subcontract, management contract, lease contract, concession, joint venture, and divesture (TDRI, 2009). This annex focuses the following discussion on three main types of contract normally used in Thailand[2]:

1) ***Management contract*** is a contract form where the public sector contracts out some of its obligations and responsibilities on daily management and operation of public services to the private sector. This form can further be sub-categorised into three main types: service contract, maintenance contract, and operation contract.

   In general, this type of contract is short in duration, about three to five years but no longer than 10 years. The private sector receives fixed fees or predetermined rates in return. The government may also provide incentives in the form of additional payment when the contracting partner achieves certain performance targets. This kind of profit-sharing scheme is an efficient tool of managing operational and commercial risk, and incentivises the private sector to efficiently perform by controlling costs and improving service quality. Under this arrangement, the public authority is still responsible for investment and ownership control over the project assets.

   As mentioned earlier, this scheme is good for improving the efficiency in public service activities and can be the first step for inducing private participation in public projects. However, this type

[2] For more information, please refer to the detailed study in the *Strategic Plan for Infrastructure Development to Enhance National Competitiveness* (in Thai), which is a collaboration-project between the Thailand Development Research Institute and the Faculty of Economics, Thammasat University.

of PPP scheme is not appropriate if the government is constrained by limited budgets for new investments.

2) ***Lease contract*** is a form of PPP wherein the private sector leases infrastructure facilities from the government. The private sector is responsible for the provision of services and maintenance of the leased assets while the government still has control of the assets and is responsible for the capital investment. Under this arrangement, the private sector obtains returns or losses based on its ability to generate income from services and to control overall operational costs, as well as based on the amount of leased payment. In a lease contract, the private sector is exposed to higher commercial risks compared with one under a management contract arrangement. In general, the lease contract is an appropriate option for the government to improve its operating efficiency for existing assets while being able to transfer sufficient commercial risk to the contracting partner. Average contract duration is about eight to 15 years.

3) ***Concession*** is a form of PPP where the private contracting partner takes relatively high risks because it assumes high responsibility for many important tasks ranging from construction and rehabilitation of project assets, service operation and management, and maintenance of assets. Normally, the private partner is granted the right to operate the project assets over a concession period. After a concession contract ends, project assets such as infrastructure facilities will be transferred to the property of the government. On average, the duration of concession arrangement is about 25-30 years.

Under concession arrangements, the public authority will call for a bid of the PPP project by issuing an invitation to tender. Following the tendering process, qualified candidates will compete among one another. The government uses bidding price and other qualifications as criteria in the selection of its partner. The bidder who is financially sound, has the technical capability and offers the lowest cost for undertaking the project and the highest return to the government will be selected. Contract life normally lasts for a number of years based on the useful life of the constructed

infrastructure and facilities. Given quite a long contract life, the concession contract must be designed to cover all important issues and conditions such as targeted performance, level of service and service quality, technical and service standards, capital investment and management, pricing and payment mechanisms, dispute settlement measures, etc. While a concession arrangement allows the public sector to transfer many types of risks to the private contracting partner, this type of PPP provides the partner a monopoly over the use of the project infrastructure. To prevent the private company from taking advantage of its concession rights at a cost to the government and society, public regulatory authorities must have good monitoring systems and evaluate the performance of the contracting partner closely. Regulations, together with efficient and transparent monitoring mechanisms, are needed. In general, concession-type contracts can be subcategorised into many other forms. The following are some variants of concession-type arrangements:

- **Build-Transfer-and-Operate contract (BTO):** Under this contract, the private company is responsible for investment in building infrastructure facilities, which will be transferred to the government immediately after the construction is completed. The private contracting partner is allowed to obtain a return on its investment and other benefits at a predetermined rate. Examples of BTO projects include the Si Rat Second-Stage Expressway system and Bang Pa-in – Pak Kret Expressway.
- **Build-Operate-and-Transfer contract (BOT):** Under this contract, the private company takes full responsibility for investing, constructing, and maintaining infrastructure facilities, has the right to operate over a specified period, takes most of the project risks, and collects service fees as agreed in the contract. After the contract ends, the private partner transfers all infrastructure facilities in the project to the contracting authority. An example is the Bangkok Mass Transit System (BTS).
- **Build-Lease-Transfer contract (BLT):** The private sector builds and owns infrastructure facilities, which will be leased to the government for a specified period of time, after which the

titles of the assets revert back to the government.

- **Rehabilitate-Operate-Transfer contract (ROT):** A public authority transfers to or leases existing project assets to private partner. The private partner is obligated to improve and maintain the quality of all the facilities and to provide services for a specified period of time. At the end of the contract life, all the project assets under this arrangement will be transferred to the government.
- **Contract-Add-Operate (CAO):** A public authority leases existing infrastructure facilities and allows the private partner to make additional investments and use the facilities for income-generating activities for a specified period of time, after which the facilities are transferred to the property of the public authority.
- **Rehabilitate-Own-Operate contract (ROO):** A public authority transfers existing infrastructure facilities to a private partner who is responsible for improving and maintaining the facilities. Then, the private company can use the facilities to provide services in perpetuity as long as it does not breach the contract.
- **Build-Own-Operate contract (BOO):** Similar to the Rehabilitate-Own-Operate contract, the private company has the right to use the project's infrastructure facilities for income generation, normally in the form of service fees and rents. However, it differs from the ROO in that its contract arrangement is for new investment in facilities. Some examples are the Independent Power Producers (IPP) and Small Power Producers (SPP) programmes carried out between the Electricity Generating Authority of Thailand (EGAT) and private power producers.

Under all the seven forms of concession-type contracts, the private company has to take high risks in both investments and operation. But the risks are highest under the BOO and ROO arrangements since the private partner owns the infrastructure facilities, is not obligated to transfer the

title to the government, and its right to use the facilities is not constrained by any contract duration. The role of the government will be mainly on regulating, supervising and monitoring the activities.

The contracts can be categorised into three main groups based on the transfer of ownership: (1) A group of contracts in which the private sector must transfer constructed facilities to the government once the construction is completed; (2) A group of contracts in which the private partner must transfer all the facilities to the government immediately at the end of contract; and (3) A group of contracts in which the private partner does not have to transfer the title of facilities to the government. In the last group, the private sector takes the highest risk as it is responsible for all functions such as financing, constructing and marketing. The faster the transfer of ownership to the government, the lower the private sector assumes project risks. However, a low-risk project also means lower returns.

To operate project assets, the private partner may be contracted under any of the two forms:

1) ***Gross Cost Contract.*** The private company takes operational risks in providing railway services while the public authority takes income risks mainly on the collection of income from services. Under this contract term, the public authority will make payment to the private operator for running the services. This kind of contract may include any of the following conditions that will help drive efficiency in operations:
    - *Shared production risk*: The private partner takes operational risks but the government will share part of the risk. For example, if the oil price or the interest rate increases, the government will compensate for the additional cost of production.
    - *Revenue incentive*: This condition aims at providing additional return in case the operator increases the number of ridership and operates to earn more revenue.
    - *Revenue incentive and shared production risk*: The contract is designed in such a way that the public authority shares

additional profits to and operational risk with the private partner.

2) ***Net Cost Contract.*** The concessionaire takes both operational and income risks and is allowed to collect service fees and manage the operations itself. The public authority may increase the incentives for private sector's involvement by any of the following actions:
    - *Shared revenue risk*: The public authority sets minimum guaranteed revenues or gives compensation to a private partner when the operation is running below the expected level.
    - *Shared production risk*: The authority shares operational risks with a private company.
    - *Shared revenue and production risk*: The authority shares the private partner's risk of having higher operational cost or lower income.

Based on global experiences, there is no one best form of PPP. The choice of PPP arrangements depends on market conditions and many other factors. For example, on the scenario where there is high uncertainty in generating income, the government may share the risks. Each kind of contract has a specific purpose, too.

The bidding process under the Gross Cost contract is quite simple as it sets minimum requirements such as useful life and performance of the trains/cars while the Net Cost contract is more complicated. Under a Net Cost contract, the authority will assign the area, and a private company will design the network of services to provide. The private company also has to calculate its income based on parameters such as the government's financial support, the number of operating hours, the peak service hours, etc.

Although the authority can transfer both production and revenue risks to its private partner under a Net Cost contract, it does not mean that such form of contract is appropriate under all situations. In certain cases, Gross Cost contracts may have an advantage over Net Cost contracts,

particularly in terms of competition, cost, operational incentives, and contract management.

There is no clear conclusion about the form of participation as well as the role of public and private sectors. Should it be a mixture of PPP and the Gross Cost contract? Or should it be the PPP and the Net Cost contract? The answers here are up for discussions. In Thailand, for example, there was an attempt to identify which form of participation—whether gross-cost or net-cost forms—must apply under the Act on Private Participation in State Undertaking B.E. 2535 (1992). The National Legislative Assembly simply declared that the Gross Cost contract and modified Gross Cost contract shall not be subjected to a complicated structure under the Act (TDRI, 2009).

CHAPTER 10

Vietnam Country Report

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Introduction

Viet Nam has a population of 88.8 million people in 2013 and GDP of US$355 billion (0.38% of global GDP). It has a factor-driven economy in the process of industrialisation and is transitioning to an economic structure that is more reliant on efficiency drivers (World Economic Forum, 2012). Agriculture accounts for 19.7 percent of GDP (38.7% in 1990); industry, 38.6 percent (22.7%); and services, 41.7 percent (38.6%). Its GDP per capita stands at US$3,998 in 2013 (GNI per capita: US$1,400) (Asian Development Bank, 2013). The change in its industry's structure is reflected in the greater urbanisation, with the proportion of population residing in towns and cities growing from 19.5 percent to 31.9 percent between 1990 and 2013.

Net private capital from all sources between 2007-2011 was US$52.8 billion, a significant increase over the US$9.2 billion of the preceding five years. Foreign direct investment (FDI) averaged US$7,862 million annually between 1997 and 2011, which is 7.6 percent of GDP on average.

Viet Nam's real economic growth has averaged 6.1 percent in the last 10 years until 2011 (see Table 10.1), and data confirm a correlation between economic growth and investment in infrastructure. The country was adversely impacted by the global economic crisis in 2008 as both economic growth and private investment slowed down during the period and then recovered by 2010-2011.

Inflation averaged 13.2 percent over the period of 2007-2011, which is higher than that of other ASEAN countries and Viet Nam's major trading partners (Asian Development Bank, 2013).

Viet Nam is committed to expanding its infrastructure so as to meet the strong demand for services. In particular, more investments in energy and roads address its growing urbanisation and support industrial development. Substantial investment has been made over the past decade on the nation's airports and national airlines, ports and major road links to China, Lao PDR, Cambodia, and Thailand. Guidelines introduced by the Ministry of Planning and Infrastructure in 2013 (MPI, 2013) directed government agencies to integrate investment and planning strategies in 2014-2015 so as to fast-track investment in economic and social infrastructure.

Electricity services 96 percent of households (compared to 78% in 1997). In 2010, consumption of energy increased from 98 kWh (1990 figure) to 1,035 kWh. Viet Nam is a net exporter of energy and the largest foreign investor in Lao PDR. The sources of energy include natural gas (46%), hydro (29%), and coal (20.7%).

For 12 years up until 2012, fixed telephone lines increased from 2.5 million to 10.2 million while mobile telephones grew from less than a million to 134 million.

The nation's investment in roads is not yet in pace with its real economic growth. The national road network increased 64 percent between 1990 and 2011 but its rail network lost 25.3 percent of its route kilometres between 2000 and 2011 (Asian Development Bank, 2013).

Table 10.1: Viet Nam's Investment/GDP Ratio and GDP Growth Rate

Period	GDP Growth Rate %	Investment/GDP %
1991-1995	8.20	28.20
1996-2000	7.00	33.30
2001-2005	7.51	39.10
2006-2010	7.00	42.70

Source: Ministry of Finance (MOF), Ministry of Planning and Investment (MPI), GSO of Viet Nam.

Table 10.2: Viet Nam's Economic Development

	2006	2007	2008	2009	2010	2011	2012
GDP (US$ billion)	60.9	71.0	91.1	97.2	106.4	123.6	136.0
Total investment/GDP (%)	41.5	46.5	41.3	42.8	41.9	34.6	33.5
GDP growth rate (%)	8.2	8.5	6.3	5.3	6.8	5.9	5.0
Inflation rate (%)	7.5	12.6	19.9	6.5	11.8	18.6	6.8

Source: MOF, MPI, GSO of Viet Nam.

1. Fiscal Policy

Viet Nam's national revenue is relatively stable, averaging 25 percent of GDP in five years until 2012. Fiscal balance over the same period averaged 2.4 percent of GDP, and total government expenditure was 28.3 percent of GDP, the highest in the ASEAN. State budget revenues from oil and other exports contributed to a current account balance of 5.8 percent in 2012.

Starting 2009, total state budget outlays decreased as a result of austerity measures undertaken to stabilise the economy following the global economic crises. Even though the percentage of national spending to nominal GDP is relative stable but high inflation has decreased the real value of it. Its operational expenditures increased while investment for development declined, suggesting inefficiencies in the operation of government business enterprises, government spending, and budget management.

Vietnam’s investment rate is high relative to growth, with the rate appears to be on the increase. Vietnam’s ICOR averaged 4.8 during 2000-2008 and 5.4 for the period 2006-2008. It is much higher than that of NICs during the transition period from 1961-1980 such as Taiwan (2.7), South Korea (3) or some countries in the region like Thailand (4.1 from 1981-1995) and China (4 from 2001-2006). (WDI calculated by Asia Competitiveness Institute, 2010)[1].

[1] Source: World Development Indicators and Economist Intelligence Unit 2010; calculations by ACI.

Table 10.3: Government Finances (GDP % at Current Prices)

	2006	2007	2008	2009	2010	2011
Total revenue	28.9	28.9	28.6	27.6	28.0	26.4
Taxes	24.3	23.5	24.4	22.5	24.3	23.1
Total expenditure	27.5	29.4	27.7	30.6	30.7	28.0
Budget Surplus/Deficit	1.3	-1.0	0.7	-3.9	-4.5	-2.5

Source: MOF.

2. Public Debt

According to calculation from the Economic Committee of the National Assembly and UNDP in Vietnam (2013), total public debt at the end of 2011 was around 55 percent of GDP, of which 31 percent is foreign debt and 24 percent is domestic. To put this statistics in context, note that the maximum level of public debt for developing countries such as Viet Nam is recommended at 64 percent (Caner, Grennes and Koehler-Geib, 2010). Adjusting public debt for off-balance sheet items such as government business enterprises, whose debt accounts for around 55 percent of GDP, would take Viet Nam well past this suggested threshold. Thus, the government should exercise caution in the management of public debt if it wants to preserve its present credit rating and to continue attracting foreign direct investment (FDI). An additional consideration here is that public debt is principally denominated in yen, US dollars and Euro currencies, which tend to appreciate quickly during recovery from international recession, thus creating an exchange rate risk in the future. Viet Nam currently has a sovereign credit rating of B+ stable (Standard and Poor's, 2013) and has a process in place to adopt the International Public Sector Accounting Standards with the International Monetary Fund and World Bank's support[2].

3. Vietnam's Capital Market

Vietnam's stock market was created in 2003 and was valued at US$33 billion in 2012 (21% of GDP). Meanwhile, its bond market is experiencing strong growth with the highest growth rate of 14.8%, reaching US$29 billion as of the fourth quarter of 2013. Treasury bills, central bank bonds, and government business enterprise debt securities account for 97 percent of bond market

[2] http://www.mof.gov.vn/portal/page/portal/mof_en/odapp/25419463/25421473?pers_id=25427174&item_id=93570841&p_details=1

instruments being traded. Private bonds have a minor and a diminishing share of the domestic bond market.

4. Infrastructure Metrics

Infrastructure is important to Viet Nam's economic development, and evidence points to a correlation between the quality of a nation's infrastructure and its international competitiveness. For instance, the present poor condition of Viet Nam's transport infrastructure adds to transaction costs, constrains better productivity and adversely affects the country's competitiveness in export markets.

Figure 10.1: Growth of Viet Nam's GDP and Infrastructure Investment

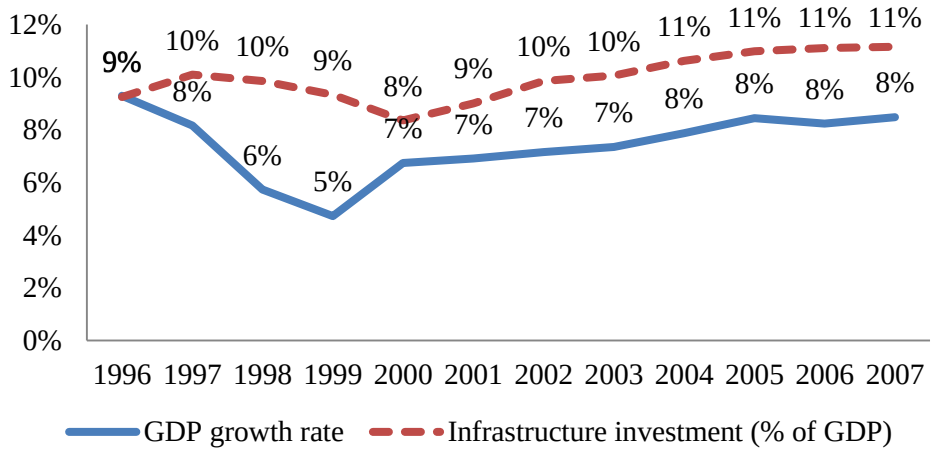


Table 10.4: ASEAN Infrastructure and Competitiveness

Countries	Overall Index	Basic Requirements	Infrastructure
Malaysia	25	27	32
Thailand	38	45	46
Indonesia	50	58	78
Philippines	65	80	98
Viet Nam	75	91	95
Cambodia	85	97	104

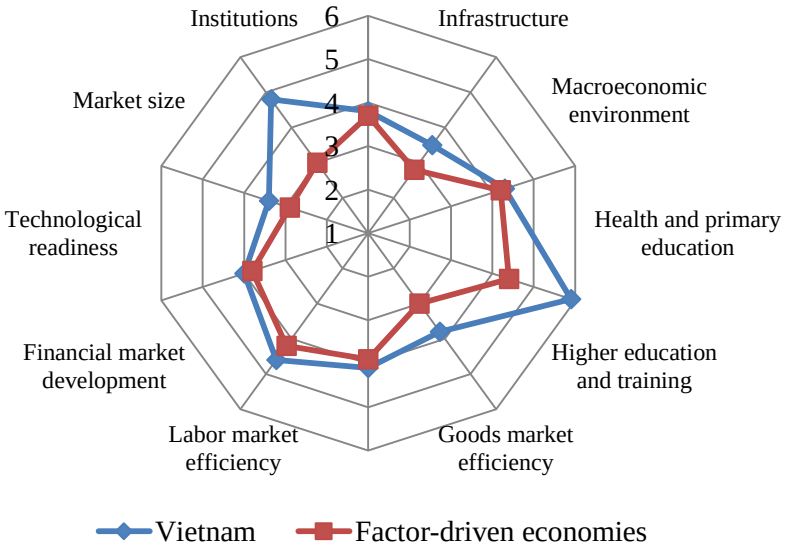
Source: World Economic Forum
Note: Lower value indicates improved adequacy over higher number.

Table 10.5: Infrastructure Adequacy, Viet Nam

	Mean	Median
Basic Infrastructure (electricity, energy, land, etc.)	6.5	7
Transport infrastructure (roads, airports, etc.)	5.0	5
Communications Infrastructure	4.5	5
Financing constraints	7.0	8
Labour Force	5.5	5
Skilled Labour, Technical Know-How	6.3	6

Source: Central Institute for Economic Management (CIEM), Viet Nam.

Figure 10.2: Development Status Viet Nam, Factor-Driven Economies (WEF 2012)



Overview of Viet Nam's Infrastructure

1. Roads and Highways

Asian Development Bank data indicate that Viet Nam has 256,000 km of roads, of which around 17,000 km are national highways and 23,000 km are main roads. Local and paved roads account for around 85 percent of the network, up from 47.6 percent in 2007 and 23.5 percent in the early 1990s (ADB, 2013; JICA, 2009).

About 43 percent of the road network is in good condition, 37 percent is in average condition, and 20 percent is in poor to very poor state. Provincial and local roads are narrow and unpaved, and vulnerable to adverse weather conditions, local flooding and landslides. Vietnam's national road strategy has prioritised secondary roads for rehabilitation, repair and maintenance over the local roads. However, as local roads carry greater traffic volume, congestion imposes time and cost penalties on provincial businesses, especially the low load factors for local producers and traders.

Road construction is costly, and limited budgets constrains Viet Nam's opportunities to improve land bridge freight connections to China, Thailand, Cambodia, and Lao PDR. Aside from the cost, the country has to contend with poor road conditions, inexperienced project managers, time and cost overruns, the country's long eastern seaboard, difficult subsoil conditions, and the need for higher vehicle clearances. All these impose high logistics costs, which account for up to 25 percent of GDP gross value added in 2012.

Table 10.6: Comparison of Costs for Constructing Expressways

	Hanoi-Vinh	Beijing-Shanghai	Shanghai-Tibet
Length (km)	334	1,318	1,142
Speed (km/h)	200	300-350	120
Time (hour)	1.5	5.0	n/a
Costs (US$ billion)	12.9	22.6	3.7
Costs per km (US$ billion)	38.6	17.1	3.2

Source: Modified from Nguyen Xuan Thanh (2009).

2. Railways

Viet Nam has made significant investment since 2000 in its national railway network, mainly in upgrades, repairs and maintenance of permanent way and rolling stock although the total of 3,142 route kilometres in 2000 fell to 2,347 route kilometres by 2011 and no new routes were opened (Asian Development Bank, 2013; Ministry of Transport, 2010 and 2014). The railway network is operated and maintained by Viet Nam National Railways, a government business enterprise.

In August 2010, the Strategic Framework for Connecting Greater Mekong Subregion (GMS) Railways was endorsed at the GMS Ministerial Conference.

Part of the plan involves a new high-speed rail network in Vietnam with an expected funding gap of up to US$64 billion. As a Government Business Enterprise (GBE), funding of its gap will be the government's task, and assistance will be sought from multilateral agencies and the private sector.

While the railway master plan has identified the investment priorities, Viet Nam still has to increase the pace of the structural reforms in the rail sector to be able to attract external funding and reduce the financing burden on the government.

The railway network in Viet Nam is not adequately utilised and has limited operational capacity. However, because of the growing demand over the years, there is an urgency to improve the urban mass transit services in the country's two largest urban areas Hanoi and Ho Chi Minh City.

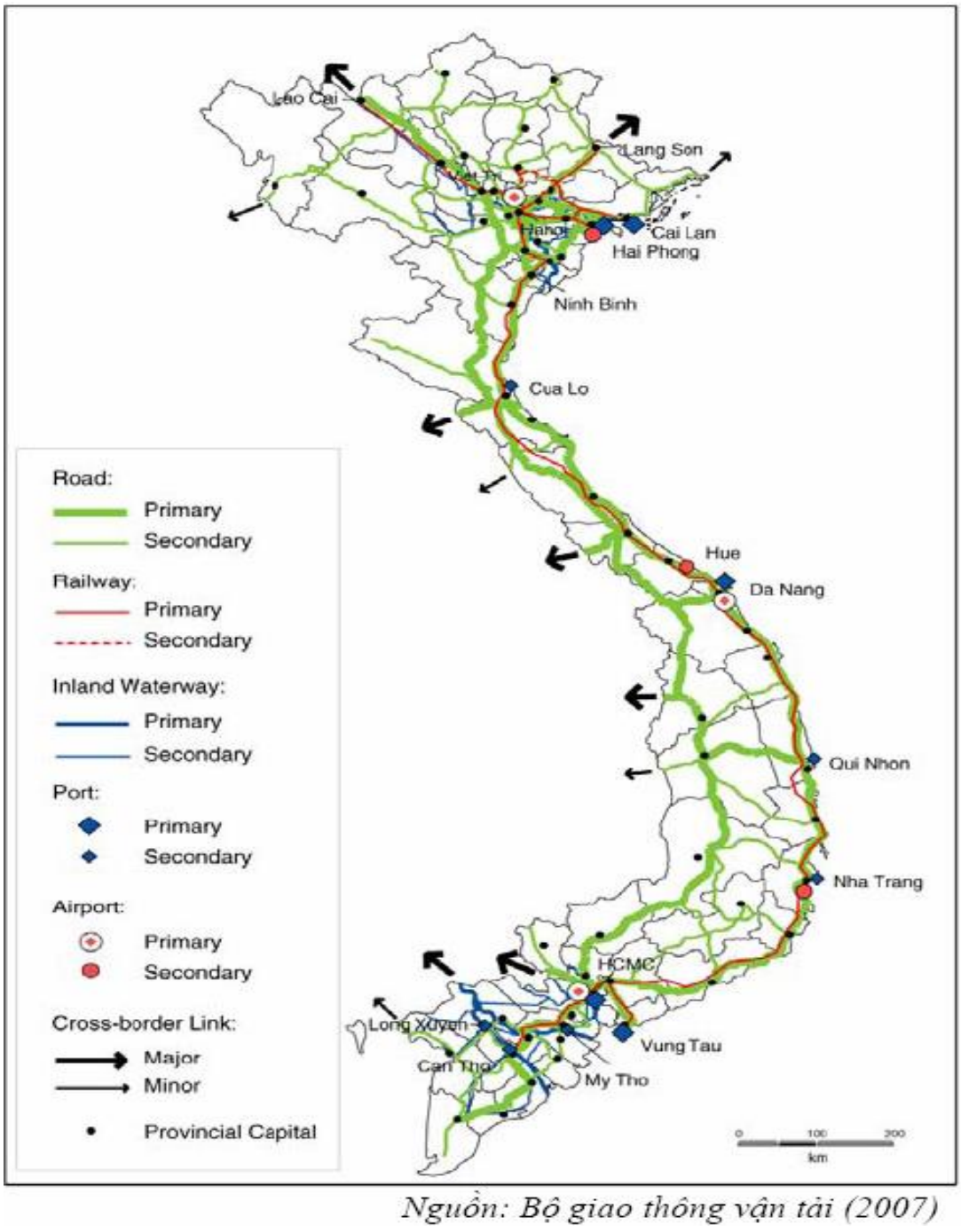
3. Ports

Viet Nam has three gateway ports: Hai Phong, Cai Lan, and Ho Chi Minh City (MOT, 2013). Eighty small ports in coastal provinces service inter-provincial trade and the fishing industry. Viet Nam has no deep-water port and exports are transshipped to Hong Kong or Singapore before these are dispatched to foreign markets. Transshipment imposes transaction costs on both exporters and importers of about US$400 per container (or US$1.7 billion annually). The country's infrastructure plans now include looking into the feasibility of having a deep-water port.

4. Airports

Viet Nam has international airports at Noi Bai, Da Nang, and Tan Son Nhat, while domestic aviation is served by over 30 regional airports. The international airports are being upgraded and a new airport is under construction at Dong Nai to replace the international traffic at Tan Son Nhat. Upgrading Viet Nam's major airports is necessary if the nation is to compete with rival destination cities in the ASEAN region and to maintain its growth in international tourism.

Figure 10.3: Map of Viet Nam Connectivity



Source: Ministry of Transport (MOT), 2007.

5. Power

Viet Nam's rapid industrialisation and the electrification of households contributed to an increase in energy consumption from 98 KWh to 1,035 KWh per capita between 1990 and 2010. The main sources of power are natural gas

(46%), hydropower (29%), coal (21%), and oil (4.2%) (Asian Development Bank, 2013).

Viet Nam has invested significant capital in energy generation infrastructure in its attempt to keep up with the increasing demand in energy. The demand, in fact, is running at around 15 percent annually, which brings many challenges on the supply side. Electricity Corporation of Viet Nam (EVN), a government business enterprise that manages the energy network, has relied on Build-Operate-Transfer (BOT) arrangements to attract private investment, technology, and management expertise. However, power blackouts and insufficient energy supply during periods of peak load are expected to increase as a result of the anticipated gap between demand and supply in 2015 and onwards.

The energy network's potential for future expansion is constrained by limited hydro capacity due to recent protracted dry seasons as well as other changing climatic conditions. Support for the new coal-fired facilities has also proven challenging as private investors favored cogeneration and gas-fired technologies that need to be located close to gas fields and are connected to distribution networks.

Table 10.7: Power Sector Demand Growth, 2004-2020

	2004	2010	2015	2020	2004-2010 Growth Rate % pa
Fifth Power Master Plan					
Total sales (TWh)	39.7	81.2	113.8		12.7
Generation requirement (TWh)	46.2	98.0	129.8		12.4
Capacity requirement (MW)	11,197	20,636	30,892		10.7
Updated EVN Estimates (2004)					
Generation requirement (TWh)	46.2	98.0	138.4	228.0	13.4
Capacity requirement (MW)	11,197	24,447	34,250	42,000	13.9

Source: Decision110/2007/QD-TTg, 18/07/2007 on Power Investment Plan 2007-2015.

6. Priority Sectors

The *2012 Global Competitiveness Report* gave Viet Nam a poor rating for its infrastructure, particularly for the quality of road and port facilities (World Economic Forum, 2012). The early priorities of the government are thus on improving road, port, and energy infrastructure services. Its major challenge

revolves around how it can improve the quality and cost-effectiveness of infrastructure services so as to reduce transaction costs, improve productivity, and improve trade competitiveness.

7. National Development Plan for Infrastructure

In 2011, the government adopted a five-year Socio-Economic Development Plan where increased investment in infrastructure is a central initiative. The plan designed strategies on how to sustain future economic growth and accelerate Viet Nam's social and industrial development through infrastructure spending in the transport, energy, irrigation, and information and communications technology services. Other strategic priorities include urban development, industrial and commercial infrastructure, and services in education, health and cultural activities. Around US$16 billion annually is needed for these objectives, but the available capital only meets 55 percent of that requirement.

In the transport sector in particular, the demand for freight and passenger demand, according to the Ministry of Transport, are expected to respectively increase by 7.3 percent and 12 percent annually during 1990 to 2030 (Ministry of Transport, 2007). The plan includes the construction of two subway systems in Hanoi and Ho Chi Minh City at a cost of US$15 billion.

8. Transport Infrastructure

Among the major regional economies in Viet Nam, demand for transport services is highest in the Mekong Delta (22%), the Red River Delta (18%), the Northeast (18%), Central Highlands (14%), North Central (9%), South Central Coast (7%), Southeast (6%), and the Northwest (6%). Roads draw majority of the investment (88%), followed by ports (6%), rail (3%), and airports (2%).

The investment gap in the urban transport sector is significant. For Hanoi, total investment needed is US$12.7 billion, which consists of the road's share of US$6.8 billion (54%) and urban transit's share of US$5.4 billion (43%). For Ho Chi Minh City, the road's share and the urban transit's share are US$11.2 billion (51%) and US$9.8 billion (42%), respectively. These costs are too large to be borne by the cities alone and will require additional capital from the national government, multilateral development agencies, and the private sector.

9. Energy Infrastructure

Energy consumption in Viet Nam has increased at an average 13.5 percent over the past 10 years, significantly higher than the country's real rate of economic growth. Demand is expected to reach 257,000 GWh in 2020, an increase from 46,000 GWh in 2005, with Viet Nam to become a net energy-importing country around 2015. So as to achieve long-term sustainable economic growth, new energy sources and further development of transmission and distribution infrastructure are necessary. It would also require diversifying the sources of energy and implementing energy savings measures, including demand management. The capital necessary to meet energy demand growth for the period 2006-2015 under the Power Development National Plan is estimated at US$75 million.

Financing Viet Nam's Future Infrastructure

Viet Nam faces certain challenges in getting the capital needed to increase infrastructure spending in the transport and communications sectors. Infrastructure capital is drawn from three sources:

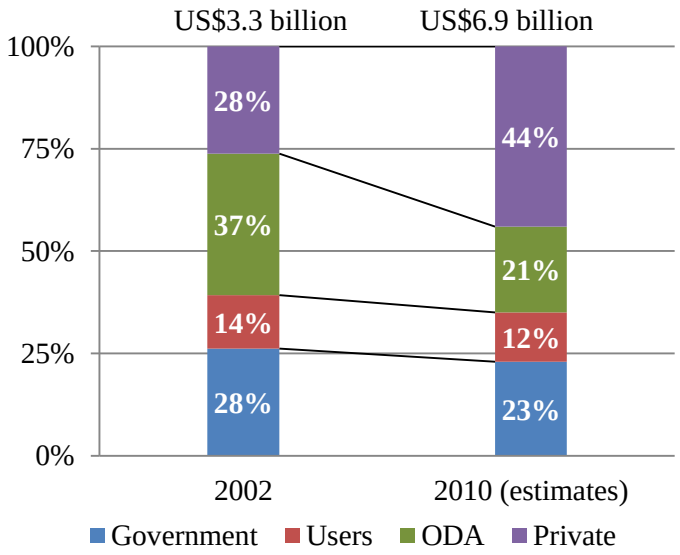
- Government investment from consolidated revenue and debt (28%)
- Domestic and foreign private investment and user charges (35%)
- Loans and grants from overseas development assistance agencies (37%).

The contribution from each source of financing changes over time. Recent data show that financing from the government and overseas development agencies has declined, while investment from the private sector has increased. Private investment has been generated due to the wider use of Public-Private Partnership (PPP) transactions in the energy sector.

10. Transport Investment

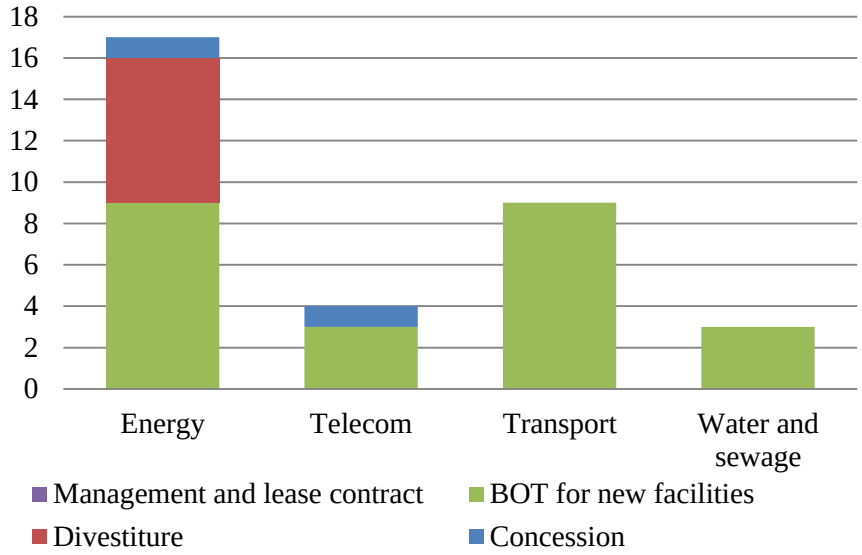
Transport projects are mainly funded by the state budget and overseas development assistance (ODA) and implemented by state-owned business enterprises. Implementation problems with subnational government agencies and government business enterprises pertain to budgetary and time management, capital allocation issues, and payment delays leading to slippage in construction schedules. These problems have contributed to a decline in bank-financed amount in transport infrastructure in recent years to less than 12 percent of project funding (see Figure 10.4).

Figure 10.4: Infrastructure Financing for Viet Nam



Note: ODA = Official Development Assistance.
Source: Reproduced from Viet Nam's Infrastructure Challenge: Infrastructure Strategy - Cross Sectoral Issues, 2006, World Bank.

Figure 10.5: Type of Private Investment Projects in Viet Nam (1994-2010)



Source: WB PPI Database.

In the past 10 years, BOT transactions have made a significant contribution to investment in the energy and telecommunications sectors. There is a small number of transport projects that have been undertaken under the BOT scheme around Ho Chi Minh City and neighbouring provinces, the most important of which is the Nguyen Van Linh Boulevard. This US$100 million project is a 17.8-km toll road connecting Highway 1 and Tan Thuan Export Processing Zone in the south of the city. It is a joint venture of the Taiwanese CT&D Company and Tan Thuan Industrial Promotion (IPC). The project requires significant government financial assistance as toll fees are insufficient to cover the maintenance costs.

Another private sector-delivered BOT project was the 13.4-km road connecting Tan Son Nhat Airport to the ring road of Ho Chi Minh City. This US$340 million project was designed, delivered and completed by the South Korean company GS E&C in 2008. Government assistance to this project took the form of a grant of land to the company for future real estate development.

Table 10.8: BOT Projects in Transportation Sector

	BOT Projects in Operation	BOT Projects in Implementation	BOT Projects in Planning
Capital	Approx. US$350m	Approx. US$5,000m	Approx. US$8,600m
Typical projects	Yen Lenh Bridge, Hanoi-Cau Gie Highway, Nguyen Van Linh Highway	Cau Gie-Ninh Binh Highway, Lang-Hoa Lac Highway, Trung Luong-Can Tho Highway, Long Thanh-Dau Giay Highway	Hanoi-Lang Son Highway, Hanoi-Halong Highway, Dai Giay-Nha Trang Highway, Bien Hoa-Vung Tau Highway

Source: Ministry of Planning and Infrastructure, 2012.

11. Port Investment

Two port projects in the south of the country have been completed with foreign investment at Beria Serece (bulk cargo port) in Ba Ria Vung Tau province (containers port). A proposal to develop a strategic port at Cai Mep Thi Vai failed because of lack of project support. Negotiations are under way to get the Ministry of Transport to undertake the project with ODA from Asian Development Bank.

12. Power Investment

Recent years saw government business enterprises such as Petro Viet Nam (PVN) and Viet Nam Coal and Mineral Corporation, Vinacomin invest in coal and gas-fired generation facilities. Also, a number of energy projects with BOT arrangements have been delivered (Cooper, 2004) although the government does not pay capacity charges or enter into take-or-pay power purchase agreements with private investors. However, if the country is to meet the required generating capacity in the future, infrastructure projects must be attractive enough to lure more investments from the private sector. Thus, these capacity charges or take-or-pay arrangements may now have to be considered for projects that require higher base load output rates.

Most independent power producers buy gas from state-owned gas companies and sell electricity to state-owned transmission and distribution companies. These transactions require some certainty over future prices to avoid a mismatch between input and output costs. Multilateral development institutions, therefore, can provide energy projects in Viet Nam some help on

political or currency risk insurance or guarantees, aside from assistance with subordinated debt and mezzanine financing.

13. Viet Nam and ASEAN Connectivity

The ASEAN Connectivity initiative is particularly important for Viet Nam's economic and social development as it promotes the nation's potential as a gateway between mainland China's Yunnan Province and Lao PDR as well as to the island countries of the ASEAN via the South China Sea. Viet Nam is also strategically located between South East Asia and the southern and western provinces of China.

Without the ASEAN connectivity, Viet Nam lacks land transport links to Myanmar and has restricted transport links to Lao PDR and Thailand. Its lack of a deep-water port also limits its sea transport links to ASEAN member countries.

Because of the potential benefits from greater connectivity within ASEAN, Viet Nam has committed to support projects that improve connectivity and facilitate greater regional trade and commerce. This includes one-stop border processing of customs and immigration services and participation in specific multilateral initiatives such as the East West Economic Corridor programme. Viet Nam has also aligned its national infrastructure development strategy with the ASEAN Connectivity programme so as to facilitate trade with Lao PDR, Cambodia, and Thailand; and with ASEAN member countries and China.

Specific projects include the economic corridor between Viet Nam and China that encompass Kunming, Lao Cai, Hanoi, Hai Phong, and Quang Ninh. This corridor is an important part of the free trade zone between China and ASEAN and the shortest path connecting the western provinces of China with the ASEAN through Hai Phong Port. Recent projects that are nearing completion include the transnational Hai Phong, Hanoi, Lao Cai, Hekou and Kunming freight and passenger railway service and the 264-km Trans-Asia Highway AH14 that connects Hanoi and Lao Cai. This road provides a key link in the Kunming-Quang Ninh economic corridor and is one of the largest and most expensive road construction projects undertaken in South East Asia.

Plans are in place for a 3,262-km north-south high-speed motorway to connect with the North-South, East-West and the South Economic Corridors; and a

1,099-km highway system in the north of the country with radial routes connecting Hanoi and the northern provinces with cross-border links to China. The project has seven roads:

- Lang Son, Bac Giang and Bac Ninh section (130 km);
- Hanoi to Hai Phong section (105 km);
- Hanoi, Viet Nam Tri and Lao Cai section (264 km);
- Noi Bai, Ha Long to Mong Cai section (294 km);
- Hanoi, Thai Nguyen to New Market (Bac Kan) road (90 km);
- Lang, Hoa Lac to Hoa Binh section (56 km); and
- Ninh Binh, Hai Phong to Quang Ninh section (160 km).

The road from Thailand to the port of Da Nang opened in 2009 and National Roads 6, 7, 8, and 9 connecting to the border with Lao PDR have priority upgrade works in progress. National Road 9 from Quang Tri City to Lao Bao Economic Zone on the border with Lao PDR is also being upgraded.

With the help of ADB, Viet Nam has rehabilitated and expanded roads, bridges, ports, and airport infrastructure from the Lao Bao border gate to the port of Da Nang, Hue, Quang Binh, and Ha Tinh. Viet Nam also has special economic zones in Lao Bao (Quang Tri) and Vung Ang (Ha Tinh) that will benefit from improved road transport to neighbouring countries. The Highway Master Development Plan includes construction of two highways to Lao PDR, the 34-km Hong Linh (Ha Linh) to Huong Son (Ha Tinh) road, and the 70-km Cam Lo (Quang Tri) to Lao Bao (Quang Tri) road.

Railway services to Lao PDR are also under evaluation. The proposed Vung Ang, Tan Ap to Mu Gia section is under pre-feasibility study with technical assistance provided by the South Korean government.

The ongoing evaluation also extends to ports and how they contribute to intra-ASEAN connectivity. The deep-water port of Vung Ang-Son Duong is the shortest route to the sea for Lao PDR and the northeastern provinces of Thailand and Myanmar. Currently, the Vung Ang Port has facilities for vessels

of up to 5,000 tonnes, and the Son Duong deep-water port is expanding its capacity to accommodate vessels of 30,000 tonnes.

Enhancing the country's connectivity to Cambodia are highway projects from the border to Ho Chi Minh City. There is also a 128-km railway project—part of the Singapore-Kunming Rail Link (the Ho Chi Minh City-Loc Ninh Railway Project) —whose feasibility study was completed in 2012 and includes 12 stations between Di An Station in Binh Duong province and the terminus station Hoa Lu on the border of Binh Phuoc province. Total investment is expected to be US$438 million but sourcing capital for the project is difficult and progress is slow. Viet Nam has then prioritised construction of a new border rail project at Hoa Lu in Binh Phuoc province that is scheduled for delivery between 2016 and 2020.

Some road connections to Cambodia are either in the planning phase or have commenced construction. These include National Highway 13 from Ho Chi Minh City to Binh Phuoc at the Hoa Lu border crossing, and rehabilitation and upgrade works on National Highway 22 from Ho Chi Minh City to Moc Bai (Tay Ninh).

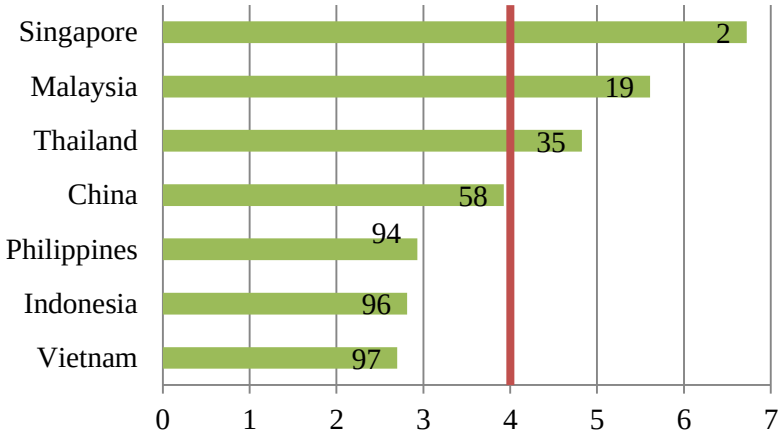
Other projects include the upgrade of existing border roads and construction of a concrete all-weather highway that connects Ho Chi Minh City to Ca Mau and include the following stages: 69-km Thu Dau Mot (Binh Duong) to Chon Thanh (Binh Phuoc) section; 55-km Ho Chi Minh City-Moc Bai (Tay Ninh) section; 160-km Quy Nhon (Binh Dinh) to Pleiku (Gia Lai) section; 200-km Chau Doc (An Giang), Can Tho to Soc Trang section; the 225-km Ha Tien, Rach Gia (Kien Giang) to Bac Lieu province; and the 150-km Ca Tho to Ca Mau section. All border gates are being progressively upgraded until 2020.

Connectivity in the energy sector is another priority area. Viet Nam in fact was part of the working groups at the 28th ASEAN Energy Ministers Meeting. Here, it took an active part in helping develop the ASEAN energy cooperation framework for the ASEAN grid planned for 2020.

Viet Nam is also investing and providing technical assistance for the hydroelectric projects in Cambodia and Lao PDR. In the past 10 years, Viet Nam had constructed new transmission lines to Lao PDR. Plans for new lines to Thailand and Myanmar and eventually to other ASEAN countries are under way.

Viet Nam's plans on new capital spending to improve its connectivity with ASEAN countries are not without challenges. First, the capital outlay increases external debt and consequently limits its fiscal options. Second, Vietnamese social and business communities have limited awareness about the ASEAN, which may need to be addressed with an information dissemination programme on or before 2015.

Figure 10.6: Overall Ranking Infrastructure Quality of Asian Countries



Note: Scoring range 1 to 7. Overall ranking 1-134.
Source: Global Competitiveness Report 2008-2009.

Private Sector Participation

The telecommunications sector of Viet Nam gets the biggest slice of private infrastructure investment, accounting for 33 percent of the total investment and leading other sectors such as electricity (25%), natural gas (19%), ports (16%) and waste management (5%). The most common form of private investment is the BOT contract.

14. Types of PPP Projects in Viet Nam

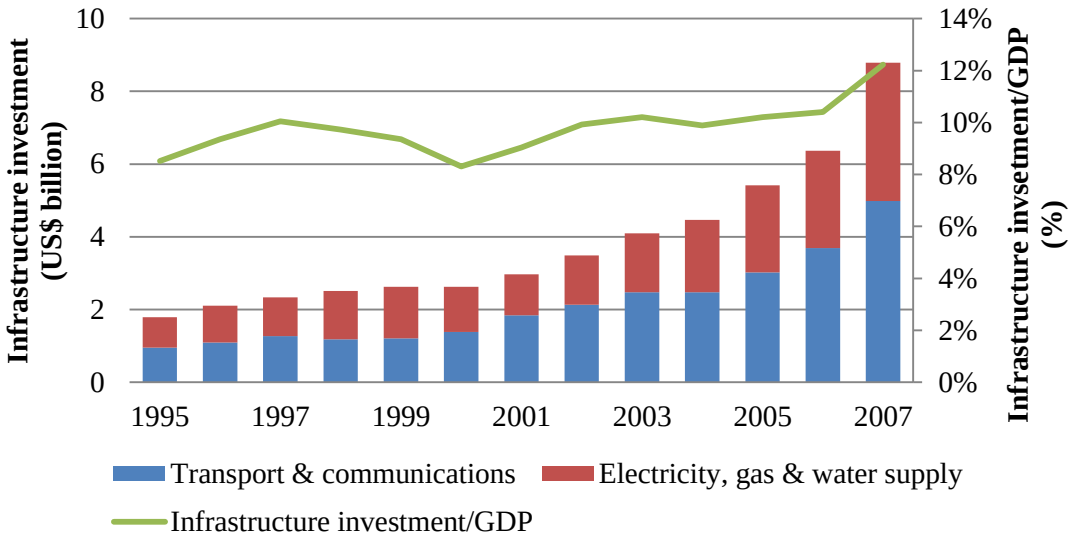
Build-Operate-Transfer projects*:* Private contractors design, build, finance and operate a unit of infrastructure, which delivers specified services to, or on behalf of, the government. The private party derives revenues from user charges or an availability payment made by the state. On expiry of the contract

term, the assets are transferred to the state. The BOT arrangement includes outsourcing contracts, concessions, franchises, and sale and leaseback transactions.

Build-Transfer projects*:* Private contractors design and build infrastructure and transfer it to the state. Build-Transfer transactions may also use a stapled long-term service contract.

Outsourcing contracts*:* Private parties bid for the rights to operate a state asset for a period of time and recover their investment via user charges.

Figure 10.7: Infrastructure Investment in Viet Nam



Source: GSO.

Land-for-infrastructure projects*:* The state offers in-kind grants such as land and development rights to a private party in exchange for the provision of a unit of infrastructure.

People participation projects*:* A method that permits local investors, communities, and industry associations to engage in a contract with local authorities in the design, building and operation of local facilities such as produce and goods markets, meeting and conference rooms, water supplies, playing fields, and buildings for sporting or recreational use. Public-private partnership projects implemented since the 1990s include the Phu My 3 power

project, the Co May Bridge, and several Build-Operate-Own (BOO) independent power projects. The private sector participated in 82 PPP projects between 1990 and 2013, of which 78 percent were in energy sector and 87 percent were greenfield BOT transactions (World Bank, 2014)[3].

15. Legal Framework for PPP

The legal framework for PPP transactions is set out in Decision 71/2010/QD-TTg, which authorises private participation in infrastructure provision and management subject to minimum equity contribution requirements. The PPPs may be negotiated by national, provincial and local governments. The government of Viet Nam does not provide direct guarantees to private investors although it may provide support to multilateral agencies that, in turn, furnish guarantees to private lenders in the form of political or currency risk insurance. The PPP procurement carries incentive to the private party whenever the latter can deliver a project on time and within budget, and manage service delivery efficiently and at least cost. The PPPs involve significant transfer of risk to the private party, including design, construction and life cycle cost risks.

However, PPPs are not suitable for all projects. They are generally complex and require innovation so as to deliver the best value for money outcomes for the government. A lesson learnt from other industrialising nations is not to use PPPs as a substitute for public capital or for projects that are otherwise too difficult for government to deliver as traditional procurement initiatives. Excessively complex or difficult projects will attract a substantial risk premium from private parties, thereby reducing the value for money outcome to the government.

Changes to the PPP policy in 2012 (Decision No. 1624/QD-TTg) set state participation at 30 percent of a project's capital requirement. Investors argue that the new rules are not enough to support bankable roads projects, and recent data indeed indicate that PPP projects are presently running at a lower rate than prior years.

[3] http://ppi.worldbank.org/explore/ppi_exploreCountry.aspx?countryID=67

In future PPP rollouts, regulators should aim for the following:

- To improve project planning and preparation,
- To apply a scientific approach to project selection criteria; and
- To solicit better funding for detailed project evaluation works.

As the complexity of PPP transactions increases with wider application, national and subnational governments will need to develop the necessary processes and protocols to develop adequate deal flow and to attract private investment.

16. About FDI

The current FDI in Viet Nam's priority transport sector is mainly directed towards port infrastructure projects. Viet Nam has nine joint venture FDI projects in the port sector worth US$1.7 billion.

Table 10.9: Registered FDI to Viet Nam (1988-2010)

Period	Project Number (New License)	Registered Capital (US$ billion)
1988-1990	211	1.60
1991-1996	1,781	27.83
1997-2000	1,352	16.09
2001-2005	3,935	20.72
2006-2010	5,411	132.58

Table 10.10: Registered FDI to Viet Nam by Sector (1988-2010)

Sector	Project Number (Valid)	%	Registered Capital (US$ billion)	%	Realised Capital (US$ billion)	%
Industry-Construction	8,375	61.8	119.5	56.1	20	68.0
Service	4,420	32.6	93.5	43.9	7.4	25.1
Agriculture-Forestry	749	5.6	4.4	0.2	2.3	6.9
Total	13,544	100.0	217.4	100.0	29.7	100.0

Table 10.11: FDI to Viet Nam by Sector at 31 December 2012

No	Sectors	Number of Projects	Registered Capital (US$ billion)	Charter Capital (US$ billion)
1	Manufacturing Industry	8,072	105.9	38.4
2	Real Estate Business	338	49.8	12.7
3	Accommodation and Food	331	10.6	2.8
4	Construction	936	10.1	3.6
5	Electricity, Gas, Water	87	7.5	1.7
6	Information & Communications	828	3.9	2.2
7	Art and Entertainment	137	3.6	1.1
8	Transport, Storage	350	3.5	1.1

Table 10.12: FDI Projects by Method at 31 December 2012

No	Investment Form	Number of Projects	Registered Invested Capital (US$ billion)	Charter Capital (US$ billion)
1	100% foreign-invested capital	11,499	141.4	46.9
2	Venture	2,597	53.3	18.0
3	BOT, BT, BTO contracts	14	5.9	1.4
4	Business cooperation contracts	217	5.1	4.3
5	Stock company	194	4.7	1.4
6	Conglomerate company	1	98.0	0.1

Table 10.13: FDI to Viet Nam by Partners at 31 December 2012

No	Investment Partners	Number of Projects	Registered Invested Capital (US$ billion)	Charter Capital (US$ billion)
1	Japan	1,849	28.7	8.1
2	Taiwan	2,234	27.1	10.9
3	Singapore	1,119	24.9	7.1
4	South Korea	3,197	24.8	8.6
5	British Virgin Islands	510	15.4	5.3
6	Hong Kong	705	12.0	3.9
7	United States of America	648	10.5	2.5
8	Malaysia	435	10.2	3.6
9	Cayman Islands	54	7.5	1.6
10	Thailand	298	6.1	2.7
11	Netherlands	177	5.9	2.5
12	Brunei	131	4.8	1.0
13	China	893	4.7	2.4

Multilateral Development Agencies

17. Asian Development Bank (ADB)

A decade after ADB resumed operations in Viet Nam in 1993, the primary development challenge lay in the country's ability to restore the basic infrastructure damaged by a protracted civil war. In more recent years, the focus has been on sustainable economic growth and development, and improvement in the country's regional and global competitiveness. The ADB has helped improve national and regional connections mainly by supporting projects on the GMS corridors, national highways, and rural road networks. Its Strategy 2020 (ADB, 2008) and Sustainable Transport Initiative (ADB, 2010) call for more active involvement in urban transit and railway subsectors.

Since 1993, ADB's support for road projects began by extending loans for the rehabilitation of National Highway 1 (NH1). More recently, its support has taken the form of technical assistance for highways, main roads, and railway upgrade projects. The first of a series of loans for the improvement of provincial and district roads in the northern region was completed in 2009, and a second loan—this time, for roads improvement in the central region—was completed in 2010.

In 2007, loans were arranged for the GMS Southern Corridor (Phnom Penh–Ho Chi Minh City Highway) Project, the GMS East-West Corridor Project, the GMS Northern Corridor (Noi Bai–Lao Cai Highway) Project and the GMS Southern Coastal Corridor Project. A loan was also advanced to deal with capacity constraints at Ho Chi Minh City Port. In the railway subsector, one loan was approved in 2006 to address improvements to the Yen Vien-Lao Cai Railway in the GMS Northern Corridor. In the urban transit subsector, project development assistance was provided for the Hanoi and Ho Chi Minh City railway systems.

18. The World Bank (WB)

The World Bank provides development assistance in various forms to 209 projects, of which 41 projects are for rural services and infrastructure, 29 are infrastructure services for private sector development, and 81 are active multi-

sector projects. The 209 projects have an approved capital spend of US$914 million.

19. Japan International Cooperation Agency (JICA)

Japan International Cooperation Agency (JICA) is a major bilateral development agency supporting policy and infrastructure development in Viet Nam's transport and energy sectors. It provided assistance to 30 projects under the Stable Energy Supply Programme, xxx road, port, rail and airport projects under the Transportation System for Strategic Development Plan, and 17 rail and road projects under the Development of Urban Transportation Network.
The agency also co-financed a number of projects with other agencies, including ADB for the Ho Chi Minh-Long Than-Dau Giay Expressway and the GMS Ben Luc-Long Thanh Expressway. Its list of completed and ongoing transport projects include the Hanoi City Urban Railway Construction Project (Line 1), the Integrated Urban Mass Rapid Transit and Urban Development for Hanoi City, Northern Viet Nam National Roads Traffic Safety Improvement Project, and the Hanoi Transport Infrastructure Development Project.

20. Other International Agency Assistance

The government of France and the French Development Agency (AFD) have approved loans to Viet Nam of €8 million and non-refundable aid of €600,000 as support for the US$30-million PPP projects jointly sponsored with ADB. International agencies are supporting feasibility studies for 16 projects that focus on transport infrastructure and waste management services.

Major Challenges

The global economic crises have reduced infrastructure spending by both the public and private sectors as can be seen from the slowdown in the flow of PPP projects. Other systematic risk challenges in the next decade and beyond include the adverse impacts of climate change on rainfall, a rising sea level, and flooding in coastal communities. For Viet Nam, there are a number of unsystematic risks that will also affect the rollout of infrastructure and PPP projects. These risks include:

- Macroeconomic volatility, particularly in important economic indicators such as inflation, interest rates, M2 money supply, official exchange rates, foreign direct investment, external debt, and the current account balance;

- Delay in the corporatisation of government business enterprises;
- The introduction of a comprehensive PPP policy framework, supporting institutional reforms, and implementation of a programme of ministry capacity building for project selection and implementation;
- Low productivity, poor coordination between agencies and inefficiency in public institutions, all contributing to low productivity, time and cost overruns and delays in project implementation;
- Acute shortages in trade skills and in graduates of applied technology courses;
- High foreign debt and tight fiscal policy.

The challenges facing Viet Nam are no different from those of other ASEAN and Asian countries that are attempting to move from a factor-driven to an efficiency-driven economic base. The solutions to many of the challenges facing Viet Nam are institutional and can be addressed by improving efficiency, removing red tape, reducing bureaucratic delays, and creating a favourable environment for domestic savings and FDI in the infrastructure sector.

Conclusion and Recommendations

The creation of an ASEAN PPP policy framework to drive connectivity and greater regional infrastructure cooperation among member countries presents opportunities to Vietnam. The growth of infrastructure investment in Viet Nam has increased faster than its GDP growth in nominal terms. Over the past 20 years, much has been achieved in terms of the foundation for Viet Nam’s economic infrastructure and progress over new investments in the nation's roads, energy resources, ports, aviation, and railway and urban transport industries. Nevertheless, there persist institutional, structural and investment challenges. Chief among these is the need to raise the level of private sector participation in the infrastructure sector.

There is the likelihood that ODA levels will decline as the nation's economy grows and the GDP per capita increases. New sources of long-term finance will, thus, need to be identified and encouraged so as to lessen reliance on public sector funding.

The key question for Viet Nam is not just how to bring in investments into infrastructure projects so as to spur economic growth, but how to ensure that such infrastructure projects are delivered as efficiently and cost effectively as possible as well. To sustain the country's economic and social development in the future, this study recommends the following reforms:

- The nation’s macroeconomic management should focus more on improving the country's regional competitiveness and on upgrading its sovereign credit rating to investment grade for domestic currency issues so as to reduce the cost of capital for government, and domestic and foreign investors;
- Practice inflation targeting and tighter monetary policy to improve the business environment and maintain the confidence of the business community;
- Improve transactional accountability and transparency (including in the operations of government business enterprises), particularly in the project and bidder selection processes to improve efficiency and develop greater cooperation between public and private sector managers;
- Raise the skill levels in government agencies through capacity building programmes designed specifically for delivery of complex projects;
- Amend and continuously improve the PPP policy, including allowing viability gap funding without minimum private equity subscription for priority government projects;
- Create a dedicated PPP Unit within the Ministry of Finance or another central government agency; revise regulations so as to better deal with pilot PPP investments that expand the field of infrastructure investment under the PPP model; strengthen interdisciplinary working group assistance to state agencies with PPP projects;
- Forge greater planning and coordination between government ministries, and between the public and private sectors; and improve mechanisms for monitoring and reporting government investment projects.

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