



**Asia-Pacific
Economic Cooperation**



Filling the Infrastructure Gaps in the APEC's Developing Economies

**APEC Investment Experts Group
APEC Committee on Trade and Investment**

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ABBREVIATIONS

ABF	Asian Bond Fund
ABMI	Asian Bond Markets Initiative
ADB	Asian Development Bank
ADI	Authorized Deposit-Taking Institutions
ASEAN	Association of South-East Asian Nations
BOO	Build Own Operate
BOT	Build Own Transfer
BTL	Build Transfer Lease
BTO	Build Transfer Operate
CPI	Consumer Price Index
FDI	Foreign Direct Investment
GBE	Government Business Enterprises
GCR	Global Competitiveness Report
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GHG	Greenhouse Gas
ICT	Information and Communications Technology
IMF	International Monetary Fund
IPA	Infrastructure Partnerships Australia
IRB	Infrastructure Revenue Bonds
JV	Joint Venture
KPI	Key Performance Indicators
LCY	Local Currency (used in relation to bond markets)
LP	Limited Partnerships
NAO	National Audit Office
NPV	Net Present Value
ODA	Official Development Assistance
OECD	Organization for Economic Development
OH&S	Occupational Health and Safety

PFI	Private Finance Initiative (a UK PPP)
PPP	Public Private Partnership-sometimes also called P3
PRC	People's Republic of China
PSC	Public Sector Comparator
SEZ	Special Economic Zones
SOE	State Owned Enterprises
SPV	Special Purpose Vehicle
TFP	Total Factor Productivity
TNC	Transnational Corporations
UN	United Nations
VFM	Value for Money
VoIP	Voice Over Internet Protocol
WB	World Bank
WEF	World Economic Forum

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EXECUTIVE SUMMARY

Infrastructure is crucial for APEC's developing member economies in generating growth, alleviating poverty and increasing international competitiveness. The current and future infrastructure investment needs of both developing and developed member economies far outstrips available public sector resources even with the contribution from ODA. Promoting further involvement of the private sector in infrastructure development seems the logical way forward for all APEC economies.

In this regard, APEC member policymakers may opt to focus on:

- identifying and mitigating investment risks and developing more innovative, lower risk financing mechanisms for increased private sector participation in infrastructure investment including:
 - more credit guarantee, viability gap funding and where necessary direct loans;
 - a better sharing of the attendant refinancing risk;
 - government's replacing the previous role of the monoline insurers and underwriting a sufficient proportion of the project financing to lower the cost of raising capital to that of investment grade.
- broadening the financial base through a mix of improvements to local currency bond markets in APEC's developing member economies. An integrated, innovative and efficient capital market is essential for free movement of capital across Asia for infrastructure development. Development of bond markets, particularly local currency bond markets, is one of the ways to reduce foreign currency risks and minimize maturity mismatches. It also reduces the reliance on bank intermediation diversifying risk in the market. Finally, if bond markets are more efficient at channelling funds from savers to investors then this will lower the cost of capital to the real sector thereby allowing the economy to grow faster.
- a more strategic approach to planning including the establishment of separate, regional infrastructure investment funds aimed at large, long term infrastructure development.
- continuing to implement "soft infrastructure" trade and investment facilitation measures (TFAP and IFAP II) such as customs modernization, regional logistics and connectivity enhancement, streamlined business regulation as a complement to improvements in the physical infrastructure.

This study is particularly poised to explore the possibility of applying the PPP model in infrastructure development in APEC developing economies. The PPP model offers some significant advantages over traditional public procurement in terms of efficiency, service quality and value for money. For at least two decades PPPs have been used and promoted successfully by many APEC member economies with well-established enabling environments.

Promoting private capital in infrastructure and PPPs in particular raises a number of political, social and economic issues. APEC member economies therefore must individually and collectively continue to reaffirm their high level political commitment to microeconomic reform and to promoting PPPs as a viable policy option for infrastructure development.

Relatively inefficient public services in a given economy and the unavailability of domestic capital will likely spur the introduction of PPPs as a mode of infrastructure service delivery. APEC member economies should, in judging whether or not a project is affordable, base their funding decision on a comparative assessment of affordability for both traditional procurement and PPPs over the life of the project and not against the immediate budget limits or medium term expenditure frameworks.

Engaging in a PPP process requires member economies to ensure an enabling environment. A major task for member economies is to define clear legal and policy frameworks and to ensure that the appropriate capacity exists within the government to initiate, manage and implement PPPs. This ensures stability, predictability and gives a significant guarantee for investors and enterprise communities in infrastructure investment. APEC member economies also need to establish an appropriate and effective legal framework to complement the policy framework for PPPs, making sure their regulatory and legislative frameworks are up-to-date, clear, complete and integrated across sectors, ready to handle the reality of PPP contracts.

All APEC member economies should draw up clear rules and guidelines setting out the administrative process by which PPPs are considered and implemented. This is to ensure consistent, streamlined administration by the bureaucracy which will reduce uncertainties at different stages of project development and approval. Optimal practices in the PPP process needs to address four key issues-value for money, risk transfer, competition and contestability and transparency.

Finally the PPP process should be founded on adequate disclosure of information to enable public scrutiny of budget information including what the member economy will pay and full details of any guarantees and contingent liabilities. Where a government price subsidy is given for broader social or political reasons the community needs to be properly informed else there would likely develop wrong perceptions about the actions of the private sector. Member economies should also publish details of the service quality KPIs included in PPP contracts and performance levels achieved.

The legal context within which PPPs operate may comprise up to four aspects: supranational requirements; the national legislation; the laws and regulations of local/regional authorities; and the contract specific to the PPP project. Quality regulation at all levels, but particularly at the national and the local levels, is a prerequisite to ensure a successful PPP. The multilevel governance aspects also require an adequate interface between local authorities and national governments.

This inconsistency in PPP policy application is one reason, but there are many others, for recommending that APEC member economies should set up a national body responsible for designing and implementing a national infrastructure strategy or plan which has as a priority remit the need to improve the coordination of public and private investment in infrastructure.

APEC member economy experience suggests that proper institutional capacity is needed to create, manage and evaluate PPPs. The public parties engaged in PPPs also need expertise and support. APEC member economies should establish a dedicated PPP Unit separate from the policy functions to implement PPP projects.

So what can APEC and the Investment Experts Group in particular do to assist in the important area of infrastructure investment policy? One area is capacity enhancement. APEC's developing member economies when compared with developed economies like Australia, Canada and Korea with their mature PPP processes, have inadequate capacities within their public and private sectors to plan and implement so many complex, risky PPP projects consistently and effectively at the national and local levels. So targeted capacity building can help. The other work is currently under way in the APEC Finance Ministers Process for greater commonality in markets across APEC in the implementation of PPP procurement. The aim is for a more harmonised approach with an emphasis on greater commonality in PPP bidding procedures and concession agreements.

APEC also has important objectives to promote greater economic integration in the Asia Pacific region. Improving physical connectivity through improved regional cross border infrastructure is an essential aspect of meeting this objective. Cross border infrastructure can make an important contribution to filling the infrastructure gaps in APEC's developing member economies but will require concerted, coordinated action on a regional basis with MDBs and bilateral development banks to be most effective. This engagement is already under way on a broad level in many of APEC's committees and groups and this study may be a catalyst for further meaningful engagement.

For its part, IEG can continue its important supportive work through the implementation of IFAP as effective investment facilitation can make a significant contribution to the sort of broader investment climate reform efforts widely practiced by APEC member economies. Transparency, simplicity and predictability are among its most important principles. IEG can also ensure this study is carried forward into its next stage-discussion of its key findings and recommendations at a forthcoming seminar.

I. INTRODUCTION

1. APEC MANDATE

At the 16th APEC Economic Leaders Meeting in Lima, November 2008, APEC Leaders emphasized the importance of strengthening financial markets in the region and welcomed the capacity building activities initiated by APEC Finance Ministers to reform capital markets. Leaders recognized the pressing need for infrastructure development in APEC economies and welcomed the work undertaken by Finance Ministers on linkages between private public partnerships and capital market development. In this regard, Leaders called on Finance Ministers to examine more fully the means to optimize linkages between private infrastructure finance and growth and development.

In that spirit, APEC Ministers at their 20th Meeting have welcomed the agreement by Finance Ministers to support greater integration in the area of public-private partnerships which can be used to meet the infrastructure investment requirements of APEC economies. Ministers acknowledged the important role played by the Asia-Pacific Finance and Development Centre in capacity building, information sharing and promoting regional cooperation in the region.

This study project directly responds to APEC Leaders and Ministers by finding suitable approaches for APEC to fill the Infrastructure Gaps in the APEC's economies, especially developing ones. This can be done by the examination of the development of principles for APEC's economies to address the "infrastructure gap", i.e. between infrastructure investments required for the future, and the capacity of public sector in attracting possible source of funds especially from the private sector to meet those development requirements, especially in the context of financial crisis and economic slowdown.

2. PROJECT COMPONENTS

The project has two components: this study report and a 2-day seminar which will be held in Ha Noi, Viet Nam in December 2011.

The first component has been conducted in forms of literature review, case studies, email consultation and questionnaire circulation. Literature review covers studies on investments, infrastructure gaps, and forms of investments in infrastructure in developed and developing economies, focusing on APEC ones. Case studies highlight PPP forms of investment in infrastructure, especially in transport and energy infrastructure in APEC economies. Findings and implications for best practices have been consulted with experts from relevant organizations in APEC economies, including government agencies, private associations, the academia and international organizations, including but not limited to the World Bank, OECD, IFIs, and NGOs involved in the APEC developing economies.

This report as the result of the research process includes the followings:

- Review of infrastructure needs and investment in infrastructure in APEC economies. Comparative analysis of the socio-economic development conditions, government policies of developed and developing economies in the APEC region have been made. A number of barriers and trends in infrastructure investment have been identified. Roles of relevant stakeholders have been considered.
- Review of PPP as a relevant form of investment in infrastructure in APEC economies, including the motivations of related parties, the enabling environment, institutional arrangements, mechanisms, etc.
- Recommendations from different perspectives, including recommendations for policy making in APEC developing economies and recommendations for APEC as the whole to support investment, infrastructure development and PPP promotion in APEC economies, especially developing ones.

The seminar is to be held after the study. The seminar engages various stakeholders including government officials responsible for infrastructure investment, especially for public-private partnerships, and the business community as well as international/regional experts from the academia in APEC member economies. The findings and recommendations from the study are to be briefly reported to the seminar for information and discussion. Discussion outcomes and comments can be considered for the publication of the final report to be submitted to CTI/SOM.

II. INFRASTRUCTURE GAP

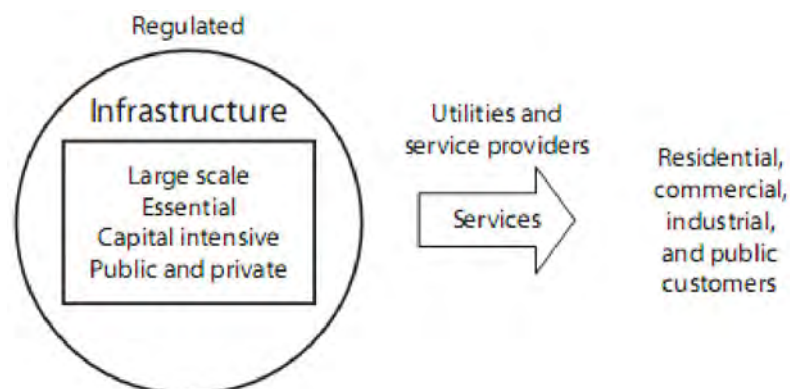
1. INFRASTRUCTURE

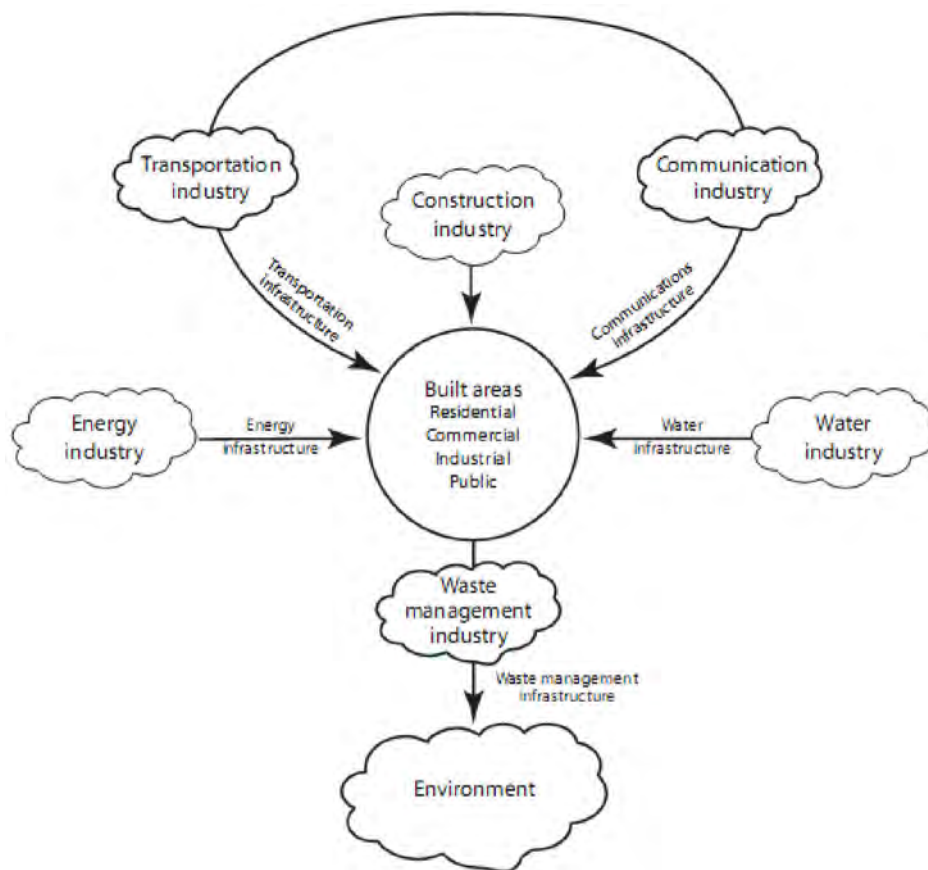
This study concerns infrastructure in the investment theme, particularly public private partnership (PPP). The first task is to define infrastructure that is relevant for PPP from various perspectives. Therefore, a review of infrastructure definition discussions raised by the academics, policy makers, private players and international organizations around the world is necessary.

From the academics' viewpoint, Fourie (2006) figured out two ways for defining infrastructure. First, infrastructure can be defined based on its common characteristics. For example, infrastructure is commonly viewed as overheads to society. Second, infrastructure can be defined as a list of infrastructure goods that are generally accepted. However, this definition has a listing problem, i.e. making a comprehensive list of such goods without debates.

Infrastructure is categorized into either economic or social infrastructure. Economic infrastructure “promotes economic activities, such as roads, highways, railroads, airports, seaports, electricity, telecommunications, water supply and sanitation”. Social infrastructure is to “promote health, education and cultural standards of the population”, such as hospitals, schools and cultural centres, etc. Moreover, Fourie described three levels of infrastructure: local, national and transnational. Authority over each level of infrastructure and the development impact of are different. He also emphasized the importance of both access to infrastructure or infrastructure quantity and quality or the “reliability of infrastructure or accompanying services”.

Grigg (2010) considered “infrastructure is not one unified system but a composite of systems involving utilities, transportation systems and environmental services, among others. ” He focused on the constructed assets in six systems: the built environment, transportation, communications, energy, water and waste management systems. His concept highlights the connection amongst the systems and the role of infrastructure in the economy.





From the UK public sector’s viewpoint, infrastructure networks are found integrated amongst key sectors, including water, waste, transport, energy and communications [Infrastructure UK, 2010]. There are strong interactions between these economic infrastructure sectors and other areas of social infrastructure investment including schools, hospitals and housing.

Sector	Significant assets
Water	Water resources (rivers, reservoirs and dams), drinking water distribution (pipes and pumping stations), waste water treatment, sewerage systems, flood and coastal defences.
Waste	Landfill, recycling facilities, waste collection and processing, hazardous waste treatment, energy recovery.
Transport	Roads (strategic and local), heavy rail, light rail, airports, ports, metro systems.
Energy	Gas storage, transmission and distribution, electricity generation (renewable and non-renewable) transmission and distribution. ¹
Communications	Fixed voice and data networks, mobile voice and data networks, satellite networks, television and radio broadcast networks and radio spectrum.

[NZ] distinguished economic infrastructure, social infrastructure and institutional infrastructure. Their concepts are clear: economic infrastructure are “the physical assets that provide services used in production and final consumption”, social infrastructure are “assets that support a healthy workforce with adequate skills”, and institutional infrastructure are those “such as the legal system, culture and capital markets”.

[India 2008] took a similar approach. Infrastructure is defined on the basis of six infrastructure characteristics including: (a) Natural monopoly, (b) High-sunk costs, (c) Non-

tradability of output (d) Non-rivalness (up to congestion limits) in consumption, (e) Possibility of price exclusion, and (f) Bestowing externalities on society. It is noted that some sectors were excluded from their original list, including housing, urban services, mining, educational institutions, hospitals, posts, industrial parks, aircrafts, road transport system.

From the private sector's viewpoint, Hobbs (2006) noted that "infrastructure assets are the physical structures and networks used to provide essential services to society, which can include railroads, bridges and dams, among others." A stand-out characteristic of infrastructure in this definition is the physical form. Infrastructure availability is the prerequisite condition on which essential services can be provided to the economy. Infrastructure must associate with essential services. Infrastructure without consideration of the services is not meaningful to economic development and social improvement.

Infrastructure Investor (2010) suggested a definition that infrastructure "covers the man-made facilities that enable any economy to operate". Infrastructure comprises "transportation [e.g. railways, roads and airports], utilities [e.g. energy generation and distribution, water and waste processing and telecommunications] and social infrastructure [e.g. schools, hospitals and state housing]".

From international organizations' view point, the OECD (OECD, 2006) gives a relatively narrow definition of infrastructure as the system of public works, including roads, utility lines and public buildings.

The World Bank (1994) has a long history of infrastructure involvement. Their focus is on economic infrastructure and they monitor improvement of infrastructure with a number of measurement indicators, using services consumption as a proxy. The definition adopted by the World Bank is for economic infrastructure and covers:

- Public utilities: power, telecommunications, piped water supply, sanitation and sewerage, solid waste collection and disposal and piped gas
- Public works: roads, major dam and canal works for irrigation and drainage
- Other transport sectors: urban and inter-urban railways, urban transport, ports and waterways, and airports

The UN-Habitat (UN, 2011) emphasized characteristics of infrastructure as the basis for defining infrastructure. They also noted the shifting of infrastructure meaning from physical assets to more soft types of infrastructure such as information systems and knowledge bases. In other words, they adopt a definition that includes 'hard' infrastructure and 'soft' infrastructure. Hard infrastructure is "physical structures or facilities that support the society and economy, such as transport (ports, roads and railways); energy (electricity generation, electrical grids, gas and oil pipelines); telecommunications (telephone and internet); and, basic utilities (water supply, hospitals and health clinics, schools, irrigation, etc.)". Soft infrastructure "refers to non-tangibles supporting the development and operation of hard infrastructure, such as policy, regulatory, and institutional frameworks; governance

mechanisms; systems and procedures; social networks; and transparency and accountability of financing and procurement systems”.

In summary, there is a variety of infrastructure definitions differing in what is to be included in infrastructure. Which areas or sectors, sub-sectors to be included depend on the practical application of that definition for the respective purposes? Nonetheless, the definitions and categories of infrastructure given by policy makers are the most detailed, and with a particular focus on economic infrastructure. It is not surprising because infrastructure has been traditionally heavily invested and regulated by governments. Nowadays, the participation of private players has been welcomed to fill the gap of infrastructure investments. Governments set the playing field for private investors and economic infrastructure is usually the most feasible for private investment.

The discussion in the above section suggests a number of issues that need to be considered when investment is at stake. First, whether the distinction between economic infrastructure and social infrastructure, and between the hard infrastructure and soft infrastructure, is important to PPP consideration. Second, what are the policy implications regarding the interdependency amongst different infrastructure sectors. Third, how important is the distinction of three levels of infrastructure. Fourth, what exactly are the characteristics of infrastructure? Fifth, how closely related are the provision of services and the availability of physical infrastructure assets. Sixth, how important it is the access to infrastructure and quality of infrastructure. Finally, how much investment in infrastructure is appropriate at each stage of development of an economy, i.e. assuming that an economy is at a given stage of development, how much investment it should concentrate on infrastructure, on which infrastructure sectors or sub-sectors, and on which levels to yield the optimum level of impact? These issues are to be discussed in the sub-sections that follow.

ECONOMIC INFRASTRUCTURE AND SOCIAL INFRASTRUCTURE

The discussion by UN-Habitat (UN, 2011) about the distinction between economic infrastructure and social infrastructure is rather clear. Economic infrastructure is about an economy’s capital stock for economic production or inputs to production (e.g. electricity, roads, and ports). Economic infrastructure can further be subdivided into three categories: utilities (power, piped gas, telecommunications, water and sanitation, sewerage and solid waste disposal), public works (roads and water catchments in dams, irrigation and drainage) and other transport sub-sectors (railways, waterways and seaports, airports and urban transport systems).

Social infrastructure encompasses services such as health, education and recreation. It has both a direct and indirect impact on the quality of life. Directly, it enhances the level of productivity in economic activities; indirectly, it streamlines activities and outcomes such as

recreation, education, health and safety. The indirect benefit of improved primary health care, for example, is improved productivity, which in turn leads to higher economic growth and real incomes. Social infrastructure also facilitates investment in human capital that ensures better utilization of the economy's physical capital stock. The impact on growth is similar to an increase in the supply of capital - a higher capital to labor ratio which enables a given number of workers to produce more output per capita.

Social infrastructure projects (schools, hospitals) are also characterized as being smaller in scale than economic infrastructure projects (motorways, bridges, tunnels etc.). Social infrastructure projects also tend to be complex, particularly in terms of ongoing involvement with the public and private sector bidders for social infrastructure PPP projects are often presented with a situation where the financial rewards are less and the operational demands are more complex than for economic PPP projects. [Jefferies et al (2007)]

Moreover, according to Allan [Allan, 2009], some infrastructure sectors/sub-sectors have been more successful in attracting private involvement, especially PPP than others. Four factors often used as the criteria to measure the attractiveness are:

- Commercial market attraction: Does a viable user-pays market exist and is the long term private investment and bank finance available?
- Regulatory complexity: How easy is it to achieve competitive outcomes for price and quality of service and to achieve good access and coverage for the population?
- Public services sensitivity: Can non-payers be denied access? Could the government lose elections if service shutdowns (e.g. power blackouts) are frequent?
- Incumbent interests: PPPs can be blocked by interests that will be threatened by private ownership or competition e.g. public works contractors or labor unions.

Therefore, even though PPP in economic infrastructure and social infrastructure are possible, the attractiveness of the later is weaker per se to the private sector to get in such a PPP. The PPP design for economic and social infrastructure must also be different for the PPP to work. It can be said the same regarding various sectors and sub-sectors in each category of infrastructure.

HARD INFRASTRUCTURE AND SOFT INFRASTRUCTURE

Casey (Casey, 2005) provides a useful discussion on the distinction between hard and soft infrastructure. Hard infrastructure is the tangible, physical assets used for the provision of basic utilities, i.e. water, gas and electricity, waste, transport services that set the framework for economic, social and environmental activities. Hard infrastructure is also public facilities and public buildings which are essential in supporting public life. It is therefore not surprising that when consideration is given to infrastructure, it is often seen in terms of tangible hard infrastructure.

Soft infrastructure refers not only to the availability but also to the quality of services provision. Comparing with hard infrastructure, the importance and role of soft infrastructure is less understood and recognized by the general public and even policy makers sometimes. Soft infrastructure is also taken for granted to be incorporated in hard infrastructure, which is not necessarily true.

The problems have been that ‘soft’ infrastructure is seen as:

- Intangible or hard to define;
- Difficult to measure and cannot always be reduced to quantitative indicators; and
- Often described in subjective and qualitative terms that may not be readily understood.

Soft infrastructure is important because it is about enhancing skills and knowledge and access to a range of appropriate services. It enhances peoples’ welfare through development of:

- Equitable, accessible and appropriate public services
- Individual skills, knowledge and abilities
- Local networks, relationships and collaborative responses

Practically, hard and soft infrastructure are often bounded together to form sustainable infrastructure. The development of such infrastructure requires:

- Capital resources to finance the provision of physical assets such as buildings, facilities and equipment;
- Recurrent or non-capital resources to enable the provision of ongoing staffing, operational and maintenance costs of infrastructure;
- Governance arrangements to ensure there is appropriate planning, management and accountability for the on-going provision of infrastructure.

For example, a developer using capital resources builds a road. It is understood that the road will require maintenance and repairs over time and that someone needs to maintain responsibility for undertaking these tasks. Similarly, a developer might build a school provided that there were a contract with the government or a private education institution to provide the teaching staff and operating costs to run the school and maintain the building.

Argy et al, 1999 make further sub-divisions of these infrastructure distinctions:

- hard economic infrastructure e.g. roads
- soft economic infrastructure e.g. financial institutions
- hard social infrastructure e.g. hospitals
- soft social infrastructure e.g. social security

In sum, because hard and soft infrastructure are often bound, a PPP must give due consideration to the availability but also to the quality of respective services so as to make an infrastructure project achieve the policy objectives.

Besides Grigg’s concept of infrastructure as “a composite of systems” in the above definition section, where infrastructure altogether evolves around the built environment or the implied community core, infrastructure sectors exhibit the interdependency amongst them. Such interdependency has important policy implications for policy makers.

For such interdependency, planning is crucial. Developments in one infrastructure sector can have important implications for developments in another. These may be complementary effects. Road construction works for example increasingly act as pipelines for district heating, natural gas supplies, electricity cables and drainage systems. The effect may on the other hand be substitutive, such as the development of communication networks having an effect of reducing the need to commute. Other examples of the close dependency could become clear in times of technical breakdown, natural disaster or malicious attack that lead to disruption of critical infrastructures. Finally, the complexity of dealing with several different infrastructures at once may be an important cost factor.

Examples of such interdependencies among different infrastructures are below:

Infrastructure	Telecoms	Electricity	Land transport	Water
Telecoms		Intelligent electricity networks, including remote metering (better demand management). Greater efficiency in spot and futures markets for electricity. More dispersed electricity consumption patterns.	Telework, teleshopping, videoconferencing, telemedicine-leads in some cases to reduced commuting and other travel. More effective vehicle fleet management. Intelligent highway systems-greater security, less congestion, more sophisticated road network pricing. Faster emergency response to accidents. JIT management and longer supply chains-generating	With ICT and sensors-better monitoring and control of pollutants, degraded drainage systems etc., and potential for remote metering (better demand management). Possibly greater vulnerability of installations, requiring back-up and fail-safe mechanisms.

			more traffic.	
Electricity	<p>Dependence on electricity, vulnerable to outages and voltage fluctuation. Electricity network can be used for transmission of information.</p>		<p>Source of power for trains. Progress in battery technology-greater use of electric and hybrid cars-may mean more charging stations. Wider coverage of household electricity-more dispersed habitat-more travel. Cost factor where road construction crosses underground electricity cables.</p>	<p>Dependence of water and wastewater systems on electricity, vulnerable to power failures. Hydropower plants. More widespread pumping and high-energy treatment of wastewater. Cross-subsidization between electricity and water-depletion of aquifers and other natural water resources.</p>
Land transport	<p>Increases demand for mobile communications, location-based services, navigation systems, emergency services. May stimulate demand for video conferences. Provides telecoms with right of way</p>	<p>Use of trains to transport fuel for energy generation (coal, oil). Modal split in favor of rail results in net increase in use of electricity (consequences for sustainability objectives).</p>		<p>Impact on water infrastructure since this is often built alongside or under major highways. Where transport improves accessibility, new settlements will increase</p>

	to lay communications cable.			demand for water services. In emergencies, drinking water can be transported to disaster-affected locations.
Water	Extension of water infrastructure to new locations and new housing engenders increased demand for Telecoms.	Extension of water infrastructure to new locations and new housing engenders increased demand for electricity services. Use of waste for energy generation. Required to cool nuclear power plants.	Waterways as alternative to road and rail. Poor water infrastructure poses risks to road and rail infrastructures though flooding, pipe breakages, etc. Cost factor where road construction crosses drainage/water pipes.	

Source: OECD, 2006 [p32]

The policy implication is that to make infrastructure investment worthwhile, investment must be balanced across various related sectors. That would stress out the public budget and the impact is small. Overinvestment in some infrastructure may be wasted or even produce pressure over the supply of other infrastructure, causing bottlenecks and breakouts. Alternatively, making a good choice of a sector or area that would lead to or trigger private investment in others is theoretically more appealing. It suggests that PPP has its important role of accompanying and supplementing public investment in many circumstances.

LEVELS OF INFRASTRUCTURE

Although government intervention is required to provide an optimum level of infrastructure that would maximize the welfare of society, the impact and incidence of such infrastructure

may fall on various parts of society. Three levels of infrastructure incidence are distinguished: local, national and transnational infrastructure.

One type of infrastructure may, for example, have a small positive impact on a local community but create significant externalities to the economy, while another type of infrastructure may only create local benefits, with little impact elsewhere.

The borders of defining local, national and transnational infrastructure are also continually shifting. A good that has a significant national infrastructure characteristic, may, with the advent of new technologies or changing political circumstances, develop an important transnational component.

The trends of globalization and localization may reduce the need for national coordination of infrastructure. In other words, even though the conventional borders are continually shifting between the various levels of infrastructure, the levels at the extreme-very localized and very globalised-are becoming more important due technological improvements and other trends. [Fourie 2006]

THE LOCAL LEVEL

When urban planners and engineers refer to the impact of infrastructure, it is usually at the local level. Town and city planners, for example, would usually only consider the benefits that accrue from infrastructure investment to the specific town and city, with little consideration for the externalities that accrue to the surrounding areas, or even national or transnational externalities.

One method of measuring the impact of a project on the firm or group of firm is cost-benefit analysis. Cost-benefit analysis calculates the net present value (NPV) of the proposed project and the project is approved if the NPV is above zero.

Although cost-benefit analysis or the theories of local infrastructure can be used to assess the impact of infrastructure at the local level as some infrastructure do benefit (or cost) only local communities, some infrastructure also creates significant external benefits (or costs) to the surrounding towns and regions. Furthermore, local politicians may not be willing to (or capable of) incorporating externalities that accrue to other areas when choosing infrastructure projects. If these benefits are not measured and added into the analysis, many projects would be turned down even though it would have increased society's total welfare. [Fourie 2006]

THE NATIONAL LEVEL

Apart from infrastructure benefiting a community with little spill-over effects to other regions, some infrastructure goods may, in fact, have provincial or national benefits. For example, a national highway system connecting the major cities and towns benefits all individuals in an economy, and not only those in a specific region, although the benefits might not be shared equally (as it will benefit those with vehicles more than others). These benefits are not fully calculated into cost-benefit analysis at the local level. As a large part of the economy's

population benefit from this infrastructure, the social benefits will exceed the private benefits to the local level. [Fourie 2006]

THE TRANSNATIONAL LEVEL

As some local infrastructure have regional spill-over effects within the national borders, so too have certain national infrastructure spill-over effects to neighboring economies, or even globally, referred to as transnational infrastructure. As the world becomes more integrated and open, people's lives will become more interdependent. The integration of international markets means that trade, investment, transport, travel, migration and communication all require international policy principles, rules, norms, treaties, laws, and standards to facilitate these activities (Kaul et al., 2003). Events or actions in one area may unleash severe repercussions that are felt around the globe. This trend of globalization shifts many national infrastructure in the realm of transnational infrastructure: international agreements on advancing peace and security, controlling terrorism and drug trafficking, averting the risk of global climate change, combating the spread of communicable diseases, or constructing global communication and transportation networks (Kaul et al., 2003).

Regional infrastructure will benefit only those economies geographically close to where the infrastructure is built. However, it is important to note that the private costs of building a railway in only one economy may exceed the private benefits for that economy if the railroad is not connected to the economy's neighbors. However, had another economy connected to that railway, the benefits to the former economy will increase and exceed the costs. Therefore, if each is left to its own, cost-benefit analysis will reveal that each economy may invest less in infrastructure as would have been the case had they cooperated. Regional infrastructure therefore requires cooperation, for example the railroad will only be constructed if all related economies share in the costs-because they necessarily share in the derived benefits. Of course, such infrastructure necessitates an active transnational government structure to coordinate and facilitate such investment. [Fourie 2006]

A study by the ADB 2009 argued that regional infrastructure is particularly important to Asia's economic development. It can deliver the following benefits:

- improve regional connectivity by making it faster, cheaper, and easier for people and goods to move across borders within the region;
- reduce the cost of regional (and global) trade, enhance the competitiveness of regional production networks, and promote greater investment;
- promote greater regional (and global) integration, and thus faster economic growth;
- help reduce poverty by improving poor people's access to economic opportunities, lowering the cost of the goods and services that they consume, and providing better access to essential infrastructure services such as electricity;
- help narrow the development gap among Asian economies by providing small, poor, landlocked, and remote economies and areas with better access to wider regional (and

global) markets and production networks, thereby stimulating investment, trade, and economic growth in those areas;

- promote more efficient use of regional resources, by developing regional projects that permit regional environment-friendly energy trade such as in gas and hydropower;
- ensure inclusive and environmentally sustainable economic growth by connecting isolated and landlocked areas to economic centers by utilizing greener technologies and providing opportunities for low-income populations;
- and help create a single Asian market, one that can engender large efficiency gains, increase regional demand, and invest Asia's savings more productively. [ADB 2009]

CONTRIBUTION OF INFRASTRUCTURE TO ECONOMIC AND SOCIAL DEVELOPMENT

The 1994 World Development Report Infrastructure for Development concluded that infrastructure investment was an important reason why East Asia's growth was much faster than sub-Saharan Africa's (World Bank 1994).

Infrastructure affects economic growth through two main ways. First, it directly contributes to output. An increase of infrastructure investment raises the same amount of national output as it adds value to the total capital stock. Second, it helps raise the total factor productivity (TFP) by reducing transaction and other costs, allowing more efficient use of conventional productive inputs.

Quantitative models have been applied to estimate the total contribution of infrastructure to economic output, including its productivity enhancing effect, such as the work of Aschauer (1989) on the effects of public infrastructure capital on US TFP. Proxies for infrastructure could be either the physical stocks (km of roads or number of telephone lines) or accumulated government spending in infrastructure. A majority of studies confirm significantly positive impact of infrastructure investment on output, productivity or growth rate. However, it is noted that models that use physical stocks as proxy for infrastructure have much larger positive impact than the other one. It is explained that the impact of government spending is smaller due to inefficient government procurements or corruption problems.

Another study by Straub reviewed the linkage between infrastructure investment and economic growth from both theoretical grounds and empirical evidence and also concluded that there is a positive and significant link between the two. However, he raised a question of how much investment to be made at each stage of development of an economy and this question is hard to find a clear-cut answer and awaits further research. Also, at each stage of development, which sector the investment should be concentrated in is another open question. They are very much related to PPPs because if the questions are answered, the public policies regarding infrastructure investment will go appropriately to the suggested direction and PPPs will be needed there.

NETWORK EXTERNALITIES

The main economic benefit of infrastructure derives from network externalities. These occur when the value of a product or system to any user rises as the number of other users increases. For instance, the more people who have a telephone, the more valuable having a telephone is. Network industries-which include telecoms, computing, electricity, and transport-are pivotal to the economy. Their integration can generate huge economies of scale and substantial technical innovation.

Hurlin (2006) found strong network effects. Network externalities can occur directly or indirectly. Direct effects arise when increasing the size of a network expands the number of economic agents with whom direct interaction becomes possible-for example, a road's value to a distribution facility increases with the number of businesses located along it. Indirect benefits exist when increasing the size of a network expands the range of complementary products and services available to its members. These are prevalent in communications, transport, and energy. For example, as a cable network's subscriber base increases, it may become profitable to offer a wider range of television channels, or broadband internet. Likewise, as the number of users connected to a power grid increases, it becomes profitable to sell a wider range of consumer products that require electricity, such as electric lamps and refrigerators. Network externalities are prevalent in infrastructure in developing economies.

When an economy's infrastructure stock was very low, investment in the sector was found to be as productive as non-infrastructure investment. Once a minimum network was achieved, however, the marginal productivity of infrastructure investment was generally greater than that of other investments. The road sector showed particularly strong network effects. Importantly, the impact of infrastructure investment on productivity depends more on the size of an economy's infrastructure network than on its level of development. This means that even poor economies can reap network productivity gains and that connecting economies' networks together is particularly beneficial. Network effects provide a strong rationale for infrastructure investment in general, and for regional infrastructure in particular. But regional infrastructure is an infrastructure that is likely to be undersupplied unless governments act together to help provide it. [ADB 2009]

Infrastructure goods usually have positive externalities. A high-speed railway between two cities will not only benefit daily rail commuters, but will also have other positive spin-offs for society, such as a decrease in road congestion (shorter travel times) and fewer road accidents. It may further create pecuniary externalities, such as rapid development along the rail network and an increase in businesses catering to rail travel. Infrastructure can also create negative externalities. Large building projects have a detrimental impact on the environment. A large electricity plant could inflict a loss on society due to increased pollution, while a dam might destroy some of the fauna and flora biodiversity in a protected area. [Fourie 2006]

2. INFRASTRUCTURE GAP

In this section the factors driving growing demand for infrastructure will be explored from both a developed and developing economy perspective including how APEC member economies are responding to the many challenges this rising demand presents. There seems little doubt from all the available evidence, which will be discussed below, that a large infrastructure gap has opened up in all APEC member economies and is set to get larger in the next two decades. The public purse will simply not be able to finance these infrastructure needs alone. Tackling the “infrastructure gap” will require APEC member economies to discover innovative approaches to financing as well as better ways to use existing infrastructure much more efficiently through newer technologies, improved demand management strategies, regulatory changes and improved planning.

There is a widening gap not only in the quantity but also the quality of infrastructure between APEC's developed member economies and its developing economies that raises important policy issues.

In this section and others that come later in this study, questions will be addressed about where new sources of finance will come from and the role the private sector will play in meeting infrastructure needs? Complex challenges will be posed to member economies about how to manage infrastructure more effectively and more efficiently, though the challenges will be different between developed and developing member economies. This will place a magnifying glass on the adequacy of current business models used to finance, organise, regulate and deliver infrastructure and infrastructure services to see if they can respond adequately to these new complex challenges.

DRIVERS OF DEMAND

Infrastructure is set to continue to expand significantly in the decades ahead. The core factors that drive infrastructure demand if looking at the short to medium term are economic growth and population growth. However over the longer term other factors cannot be ignored including demographic change such as ageing, migration, technological progress, environmental and climate change, urbanisation and growing congestion. Challenges will be plentiful: infrastructure systems in developed APEC member economies are old and in need of drastic upgrading, public finances are becoming increasingly tight, and infrastructure financing is becoming more and more complex.

Developed economies are expected to grow on average by about 3 per cent per annum to 2030. This growth will increase existing pressures on infrastructure in a number of different ways. Since the early 1980s, GDP grew by 3.3 per cent per year whilst demand for electricity grew by 3.6 per cent per year. Due to changes in industrial structure, the amount of electricity per unit of output dropped in developed economies over time as they became more service

oriented and less dependent on manufacturing output where electricity demands are higher. (This is in direct contrast to the trends in developing economies.) Electricity demand is forecast to increase to 2030 requiring additional investment in extra capacity. Significant investment (well over half required in this sector) will be needed to refurbish transmission and distribution infrastructure, including replacement of cables, substations and control centres.

For land transport, again GDP per capita is an important determinant of demand with the income price elasticity of vehicle stock and vehicle distance being strongly positive. The expansion of passenger rail infrastructure is driven more by policy considerations (notably sustainability considerations) than by revealed consumer preferences and demand is therefore less influenced by per capita income growth.

After economic growth, population growth is considered the next most important driver of the demand for infrastructure. Other demographic factors are also important notably population ageing, urbanisation and international migration as important determinants in the growth of telecoms networks. Population ageing causes the number of households to increase which is an important factor in increasing peak demand for electricity. Migration by adding to population affects the need for new capacity investment in production, transmission and distribution of electricity. Population growth and density is also important in the case of demand for land transport though population ageing only has an indirect through competing pressures for limited public infrastructure investment funds. Urbanisation and population growth will likely put considerable pressure on existing water services both for industry and residential use.

The impact of technological change on infrastructure investment requirements is hard to predict with any accuracy. For example in telecoms, the expansion of mobile telephone networks had far-reaching impacts on fixed line infrastructure so the similar widespread taking up of technologies like VoIP and fibre optics could drive rapid expansion of telecom networks. In electricity, changes in telecoms technology will lead to improvements in the management of electricity networks and lower distribution costs. On the other side, increased investment in the grid may be necessary for reliability and security of supply reasons as use of more volatile renewable energy supplies increases. A good example here is wind energy where installed capacity is growing at 30 per cent annually and has attracted sizeable investments in APEC's developed member economies including the US (the world's leading market) and Canada (See Estrade, 2011).

For land transport, improvements in vehicle technology should not affect demand for more roads. However, improvements in ICT may permit higher road capacity utilisation especially in the longer term reducing demand on new road construction. Technological improvements in three main areas of the water sector (communications and space technologies, nanotechnology and biotechnology) offer the most potential for infrastructure cost savings

especially in water treatment and enhanced performance of existing equipment (through use of smart materials that can self-heal).

The developed member economies of APEC are locked into a greener growth trajectory in the context of climate change and reduced greenhouse gas emissions, somewhat ahead of developing member economies. Better design, location and materials in infrastructure development can substantially reduce water and air pollution but it comes usually at higher cost. The dominant position of fossil fuels in the energy sector will not change overnight. Climate change will increase demands to improve existing infrastructure. Whether economies choose retrofitting existing carbon-intensive systems or investing in new sources of renewable energy, carbon capture and storage, low emission non-renewable energy sources, smart grids and new transport technologies, the costs are enormous. One area where efficiency in energy supply can be greatly improved is regional interconnection (due to differing time zones and climate) as has occurred in Europe. For APEC member economies, similar potential exists in North America and Asia.

Another area where green growth policies will require policy action is road congestion. Experience has shown that improvements in roads especially in inner city areas deliver more reliable and faster journeys and therefore increased demand and higher GHG emissions. Congestion needs to be dealt with because it not only hinders growth but makes meeting GHG reduction targets more difficult. Inevitably this will require policy action through user charges to bring congestion to more efficient levels. Road user charges potentially raise large amounts of revenue which will be necessary as decarbonisation policies will erode fuel tax revenues.

So what are the infrastructure needs of the world's developed economies including those in APEC? The US is a good case study in the problems of long term underinvestment in infrastructure maintenance and repair-see Box 2.1.

Box 2.1: Infrastructure in the United States

In July 2008, the Congressional Budget Office reported that the United States currently invests US\$400 billion or about 2.4 per cent of GDP per year on infrastructure. While significant, evidence is mounting that it is inadequate to meet current infrastructure needs. Increased transport network congestion is impacting on economic productivity by lengthening commutes and delaying the shipment of goods. For example, an estimated US\$15 billion of productivity is lost annually due to flight delays, while road congestion costs US\$78 billion a year in lost time and wasted fuel.

Underinvestment in infrastructure has become an issue of national safety as shown by key system failures-the electrical blackout in 2006 in New York, the weakened levy system in New Orleans and the collapse (or potential collapse) of structurally dangerous or obsolete structures, such as the I-35W Minneapolis bridge over the Mississippi. In 2005, the United

States received a “D” grade from the American Society of Civil Engineers assessing the current condition of aviation, bridges, waterways and other basic services. Some estimates suggest current spending needs to increase to US\$1.6 trillion annually over the next five years simply to repair existing infrastructure. This investment is critical to strengthen user safety, bolster long-term competitiveness and to ensure economic growth.

An economic downturn in the United States has accelerated plans for expenditures to rebuild national infrastructure that has been neglected for decades. In December 2008, then President-Elect Obama announced a comprehensive infrastructure plan to help spur economic growth in the United States—the largest national investment in infrastructure since the 1950s. The plan calls for between US\$600 billion and US\$1 trillion in spending with a large part planned for five broad categories: transportation and traditional infrastructure, school construction, energy efficiency, broadband internet access and health-care information technology.

Sources:

Morgan Stanley, Investment Focus, February 2009

American Society of Civil Engineers (ASCE); <http://www.asce.org/reportcard/2005/index.cfm>

Similar stories emerge from Canada and Australia. As at November 2007, Mirza estimated Canada's infrastructure deficit to be C\$350 billion and C\$400 billion with over half of that needed to upgrade and build new municipal infrastructure (C\$238 billion) (Mirza, 2007). Mirza criticised the current policy of Design Build and Forget and urged Canadian authorities of the dangers of not planning maintenance and repair costs into all PPP contracts.

The Business Council of Australia has cautioned that the quality and capacity of Australia's infrastructure stock is struggling to maintain economic growth and productivity at current levels (BCA, 2009). Economic modelling firm Econtech has estimated that the national ‘gap’ between infrastructure demand and supply in 2005 was US\$A1.15 billion for electricity, US\$10 billion for road, US\$A8.06 billion for rail, US\$A2.6 billion for gas, and US\$A3 billion for water (Econtech, 2005).

Estimates of the global infrastructure investment requirement vary from US\$41 trillion to as high as US\$65 trillion over the next 20 years which puts the relatively small size of the global fiscal stimulus packages used to combat the effects of the GFC into perspective. In sum, the infrastructure gap even for APEC's developed economies that generally have good infrastructure in place is very large and presents many challenges over the next several decades.

CONCERNS INFLUENCING SUPPLY

Evidence from the OECD (OECD, 2007) suggests that in the developed economies, government spending on gross fixed capital formation has steadily declined as a share of total general government outlays from 9.5 per cent in 1990 through 8 per cent in the mid-1990s, to

approximately 7 per cent in 2005. Reversing this trend implies, *prima facie*, increased government spending, the corollary of which is increased government borrowing and possibly higher interest rates. Conventional economic wisdom argues that governments should avoid such crowding out of private sector investment.

At the same time as developed economies are spending less on infrastructure investment, they are spending a lot more on health care and pensions. Between 1980 and 2007, social expenditure rose on average from about 16 per cent to 19 per cent of GDP. Both these key drivers of increases in social expenditures are expected to grow considerably in the coming decades, outstripping GDP growth by a sizeable margin. By 2050, spending on public health and long-term care in OECD economies is projected to increase from the current level of 6.7 per cent of GDP to between 10.1 per cent and 12.8 per cent and pensions could rise on average by around three to four percentage points of GDP over the same period.

Ageing populations are likely to lead to shrinking wage bills with consequent lower tax receipts though the extent of the reduction will depend on labour market participation rates, immigration, productivity, and the balance between consumption-based and income-based tax revenue. Scarcer labour is also likely to put pressure on government to increase spending on education. There may be offsets in the form of increased tax receipts from accumulated pension assets but the net effect is likely to be less scope for public investment in infrastructure as government budgets become increasingly constrained. Public budgets fed by taxes will not be sufficient to bridge the infrastructure gap which means more private sector finance and greater diversification of public sector revenue sources will need to make up the difference.

Private sector finance in infrastructure is certainly not new. Since the 1980s, governments have sold off many assets, mostly in utilities, transport, telecommunications and oil facilities.¹ Privatisations were at their peak in the 1990s in most APEC developed member economies but the sell-offs tapered off in the first decade of the new millennium (as budget pressures eased) but with government budgets coming under pressure again, there is scope for renewed privatisations.

New business models based on PPPs have emerged whereby the government contracts with a private partner to generally build, own, operate and sometimes transfer back, an infrastructure facility. This taps not just private capital but also project management expertise, technology, organisational and design skills to deliver a more efficient, improved service at lower total cost and in less time than traditional procurement methods. This generally fulfils prime public sector objectives in relation to new infrastructure investments. PPPs have become an

¹ A recent OECD Working Paper (OECD, 2011) found that SOEs and similar entities continue to account for a significant part of the corporate economy in many OECD economies employing 9 million people with a total combined value of close to \$US3 trillion. The size of the SOE sectors in the US, Canada, Australia, Korea and Mexico were still significant.

attractive infrastructure financing option in many APEC developed member economies especially Australia, Canada, Japan and Korea. Many large-scale projects from major road construction to power stations have been procured by PPPs.

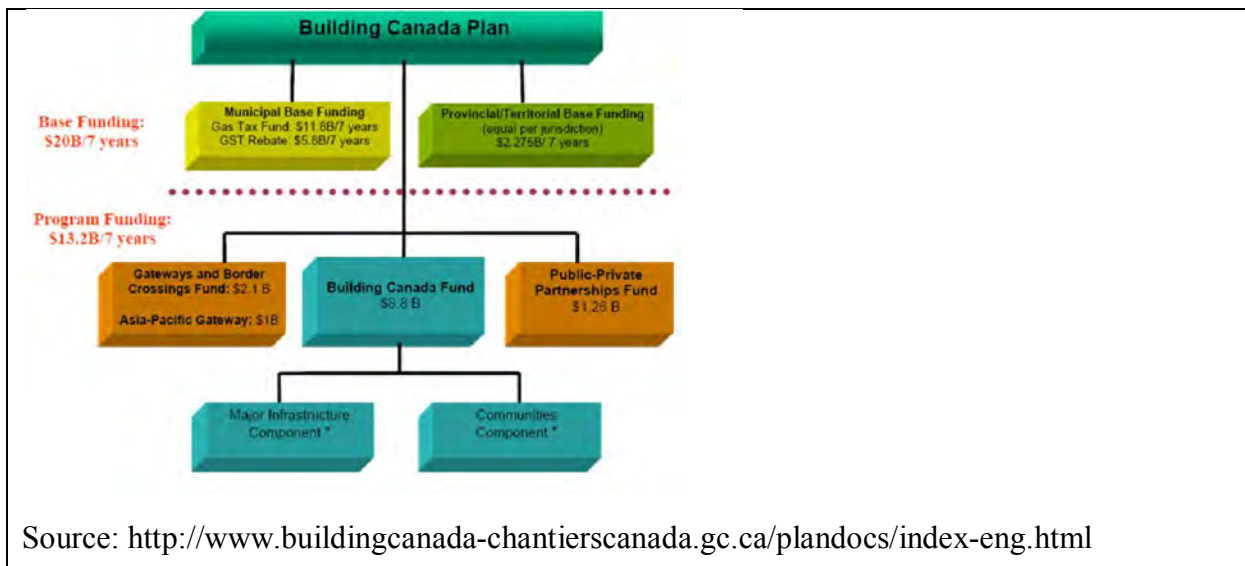
Increasingly the challenge facing government is to promote the greater use of PPP style procurement to a wider set of private investors than just the big construction companies that tended to dominate the first PPPs. Specialist private equity funds now offer investors different ways to invest in infrastructure than direct purchase of bonds. Pension funds and insurance companies are increasingly being tempted into infrastructure investment but still not on any significant scale despite the low-risk and steady returns profile of infrastructure.

Through PPPs, governments have been able to extract a considerable efficiency dividend out of the private sector on large scale new infrastructure facilities whilst improving reliability and resilience. The design and capacity of new infrastructures have also been enhanced to meet future environmental and security challenges. More innovation in applying the PPP business model in some way to the upgrade and maintenance of existing infrastructures could reap greater efficiency benefits. Ways of squeezing more efficiency out of the system include investment in new technologies, and demand management strategies to better control traffic flows through road, rail, electricity and water systems.

Another strategy governments will need to consider is diversifying its income sources away from income taxes towards specific taxes (e.g. hypothecated fuel taxes or road fees). It can also do this by becoming more innovative in areas like direct road user charges (e.g. heavy vehicle charges, tolls). Moreover, underpinning infrastructure design, financing and funding with long-term strategic planning may help develop long-term financing for infrastructure through new innovative mechanisms like Canada's Building Canada Plan.

Figure 2.1 Building Canada Plan

Building Canada is focused on delivering cleaner air and water, safer roads, shorter commutes, and prosperous, liveable communities. Building Canada provides C\$33 billion through a mix of different targeted and base funds, from 2007 to 2014, stable, flexible and predictable funding to Canadian municipalities allowing them to plan for the longer-term and address their ongoing infrastructure needs.



The potential of land value tax needs further investigation as a source of transport infrastructure funding. Many studies have shown how commercial rents and residential land values are significantly higher when located near to metro stations, rail stations, light rail etc. It is possible to capture a proportion of the increased value that accrues to landowners benefiting from new or improved infrastructure in the proximity and to use this to fund the infrastructure provided. Successfully conceived and implemented, it shows interesting possibilities for integrated financial, land-use and infrastructure planning. The Copenhagen metro in Denmark was basically financed through a joint venture company owned by the Danish government and the Copenhagen municipality. The JV bought the land, financed the project through loans, designed and built the metro and then sold off all the adjacent land and repaid the loans. It therefore captured the rising land value component itself. A PPP contract where the land value rise could be shared between the public private partners may be another way of doing these types of development.

Expanding access to additional private and public sector sources of finance will make a significant contribution to bridging the infrastructure gap. The challenges facing governments are diverse and complex so governments will need to employ a wide range of other measures to close the gap even further. Many of these changes involve improving the enabling environment for innovative responses to develop to tackle these complex challenges. For instance, governments need to examine the existing system of regulation and make changes to:

- encourage the emergence of new business models including hybrid PPPs;
- promote the development and integration of new technologies;
- ensure competition in the procurement process and the operation stage of large new infrastructure projects to deliver greater value for money; and
- the legal and administrative framework to speed up planning, procurement and implementation and to set standards to address environmental and security concerns.

Modern-day globalisation and the networked economy have brought fresh challenges. Infrastructure systems are linked more closely with one another, bringing together cities, regions and economies. These greater interdependencies create efficiencies, but also amplify vulnerability and risks where policy challenges have both intensified and become more global.

Governments need to consider closer regional and international co-operation which may help address some of these increasing network vulnerabilities together with additional benefits through coordinated cross border infrastructure projects. There is also scope for this type of cooperation to enhance joint capacity building initiatives to develop important skills in public procurement at different levels of government and to pass on shared success stories.

Many of the factors influencing both the demand for and supply of infrastructure investment covered in the previous section on the APEC developed economy context are relevant to the developing economy context just to a differing degree and with different examples. In-depth coverage of the issues is therefore not necessary except where differences occur. In the discussion, there will be more focus on the APEC developing member economies in Asia because there are more economies in that region, more case studies and therefore more lessons to draw out. Latin American economies will be discussed as appropriate but again the discussion of factors in developed economies and Asia's developing economies are just as relevant to APEC's Latin American member economies.

DRIVERS OF DEMAND

It is important to note that the Asia-Pacific region accounts for about 60 per cent of the world's population with nearly two-thirds of the world's poor found in developing Asia (ADB 2007). Population growth and demographic change (e.g. urbanisation) will exert considerable demand pressure on infrastructure provision.

The Asia-Pacific region has witnessed major progress in infrastructure development over the past two decades but growth of infrastructure still lags well behind economic growth. Despite this relatively good growth in infrastructure investment and development, the Asia-Pacific region remains deficient in extensive basic infrastructure needs with:

- 1.5 billion people having no access to basic sanitation;
- 638 million without access to drinking water;
- 930 million having no electricity (IMF 2006).
- only 3 out of every 10 people have access to telephone services; and
- only 53.4 per cent of the total road network in Asia of 5.66 million km is paved (ADB 2007).

A key driver of infrastructure demand in the developing economies of Asia is reducing poverty and meeting the basic infrastructure needs of segments of its community, often the poor in rural areas.

A second key driver of infrastructure demand has been the impressive growth performance of most Asian economies in the past 25 years with 10 of the 12 economies globally with GDP growth rates of 7 per cent or more being in Asia. Rapid economic growth has been accompanied by increasing integration into the global economy. Through the pursuit of export-oriented development strategies, Asian regional economies have established global production networks and supply chains, regionally producing and trading intermediate goods, then exporting final goods to industrial economies in the West.

While the developing economies of Asia-Pacific generally have newer infrastructure than the western developed economies, the cost of maintaining existing infrastructure continues to rise. Fast growing APEC developing member economies like Thailand, Indonesia, the Philippines, and Viet Nam are witnessing their economies' ageing infrastructure and limited capacities being stretched. Despite its improved infrastructure investment spending of recent years including the fiscal stimulus packages of 2009/2010 designed to combat the effects of the global economic downturn, the infrastructure needs for Asian national and regional projects remain massive.

Differing estimates of the infrastructure deficit in developing economies of Asia and Latin America have been undertaken, some as tops down estimates, some project by project from the bottom up. The World Bank has estimated that, on average, developing economies up to 2006 actually invested about 3–4 per cent of their GDP on infrastructure annually, but they should have been spending about 7–9 per cent on new infrastructure investment projects and maintenance of existing infrastructure, if broader economic growth and poverty reduction goals are to be achieved (World Bank, 2008b; Fay and Morrison, 2007). Of the amount actually invested in developing economies, public funding accounts for about 70 per cent, private financing 20 per cent and ODA the remainder. The financing gap is equally large for Latin America where the region spent on average less than 2 per cent of GDP on infrastructure annually up to 2006, while some 3–6 per cent of GDP is required (Omura, 2006; Fay and Morrison 2007).

According to Bhattacharyay (2010), during the ten-year period of 2010-2020, the 32 ADB developing member economies are expected to need almost US\$8.22 trillion (in 2008 US\$) for infrastructure investment or about US\$747 billion annually. This is equivalent to about 6.5 per cent of Asian estimated 2010-2020 GDP. New capacity investments in infrastructure will require around 68 per cent of this and maintenance or replacement of existing assets around 32 per cent. Approximately 49 per cent of this total infrastructure is estimated to be needed for energy infrastructure, 35 per cent for transport, 13 per cent for ITC, and 3 per cent for water and sanitation. Excluding India (US\$2.1 trillion), APEC developing member economies

have combined infrastructure needs of over US\$5.4 trillion with the lion's share US\$4.4 trillion belonging to China.

The picture emerging from this discussion is the daunting task facing all Asia's governments in addressing national infrastructure financing needs and the widening financing gaps of Asian economies in key sectors such as transport, energy, telecommunications, water and sanitation. On top of these national infrastructure needs are a number of already identified regional projects. The process of regional integration and physical connectivity in Asia is vital to its future growth and development. For example some economies have large surpluses of hydro power but need to connect to the bigger markets where the demand already exists for it. There are massive variations in the quality of basic transport infrastructure (paved roads, rail, urban transit) that is hindering growth especially in landlocked economies. Some 1200 or more regional projects, which are generally more complex than national projects) have been identified with a total investment need of US\$320 billion over the ten year period to 2020.

CONCERNS INFLUENCING SUPPLY

Later in this study in Sections III/2 and III/3, there is a detailed discussion concerning the huge infrastructure financing challenges facing the developing member economies of APEC especially those in Asia and why these economies are going to struggle to meet them. For reasons of political economy, scope to increase the public sector contribution to infrastructure investment through increases in the tax base is limited. National savings are plentiful but the many risks that seem to deter foreign investment in Asian infrastructure also affect domestic investors who opt for low-risk, high return US and European bonds. Further the allocation of national savings to infrastructure investments presents political-economy problems as in the case of tax revenues. Well-designed institutional arrangements would be needed to ensure a fair allocation of these savings to priority national infrastructure projects.

The burden of trying to bridge the infrastructure financing gap at the national level will fall on the private sector and at the regional level possibly to the multilateral and bilateral development banks which seem highly supportive of cross border infrastructure projects that increase physical connectivity (e.g. Greater Mekong Sub region, Trans-Asian Railway, Asian Highways etc). Local currency bond markets are still relatively undeveloped in the developing member economies of APEC so cannot be expected to make up the infrastructure shortfall. Further innovations in Asia's bond markets are likely in the next decade however, which should generate some additional private sector funding. Section III/2 gives more detail on private sector financing options and how effective they have been in both APEC's developed and developing member economies.

For the larger national and regional infrastructure projects Asian economies are turning increasingly to PPPs, the use of which had been growing up until the GFC. The effects of the GFC are the same as affected the developed APEC member economies-much tighter, more conservative equity and debt markets post-GFC, such that financing has been harder to obtain

on sufficiently long terms. The maturity and currency mismatch needs innovative solutions including credit guarantees, viability gap funding or other ways in which some of the risk is transferred from the private sector SPV to the public sector. Some of these issues will be explored later in this study in Section IV.

A bigger issue for APEC's developing member economies than for economies like Australia, Canada and Korea with its mature PPP processes, is the capacities of the public and private sectors to plan and implement so many complex, risky PPP projects consistently and effectively at the national and regional levels. Many uncertainties need to be addressed in the lengthy PPP negotiations including:

- how to recover funds or resolve commercial disputes;
- the harmonisation of heterogeneous domestic policies and regulations;
- exchange rate and liquidity risks caused by currency and maturity mismatch;
- political, legal, financing and regulatory risks due to cumbersome procedures; and
- political uncertainties or possible discrimination against FDI are also detrimental to infrastructure investment.

Two additional issues for the developing member economies concerns their greater reliance on FDI as a source of infrastructure investment and the relative importance of ODA and the risks this entails especially at times of global economic downturn. UNCTAD analysis in its World Investment Report, 2008, noted transnational corporations (TNC) involvement is an important source of infrastructure financing for developing economies with the share of foreign investors in total investment commitments in developing economies in infrastructure industries at 29 per cent over the period 1996–2006 (World Bank PPI Database). By region, the ratio of foreign to total commitments was relatively low in Asia (20 per cent), where domestic private investment plays a relatively important role, but higher in Latin America at 33 per cent. Data on FDI flows in infrastructure industries show that since the 1990s, TNC involvement in infrastructure industries rose with a major surge (primarily in telecommunications) in the late 1990s and a downward correction in 2001-2003. The period 2004-06 was characterized by a partial recovery.

The greater reliance of APEC's developing member economies on FDI, especially in Latin America (Chile, Mexico and Peru) means they are more vulnerable to a withdrawal of FDI or other foreign portfolio investment at times of economic downturn as has been experienced in the past three years or so. Similarly some of the Asian APEC member economies have been more dependent on ODA (e.g. Viet Nam and Indonesia) which also increases their vulnerability during economic downturns when developed economy donors come under fiscal restraint.

2.3 INFRASTRUCTURE GAP BETWEEN DEVELOPING AND DEVELOPED ECONOMIES

The key issues here are:

- how big is the infrastructure gap between the developed and developing member economies of APEC; and
- what is an optimum level of infrastructure development and what are the various benchmarks?

The seminal reference work that seeks to study and benchmark the many factors underpinning national competitiveness (one of the 12 pillars is the quality of national infrastructure) is the World Economic Forum's Global Competitiveness Report. The GCR sets out why high quality infrastructure networks are important and what constitute best available infrastructure as follows:

"A well-developed transport and communications infrastructure network is a prerequisite for the access of less-developed communities to core economic activities and services. Effective modes of transport, including quality roads, railroads, ports, and air transport, enable entrepreneurs to get their goods and services to market in a secure and timely manner and facilitate the movement of workers to the most suitable jobs. Economies also depend on electricity supplies that are free of interruptions and shortages so that businesses and factories can work unimpeded. Finally, a solid and extensive telecommunications network allows for a rapid and free flow of information, which increases overall economic efficiency by helping to ensure that businesses can communicate and decisions are made by economic actors taking into account all available relevant information." (World Economic Forum, 2011, p5)

Table 2.1 sets out the latest overall GC scores and rankings together with the infrastructure quality scores and rankings for all but one of APEC's member economies (except PNG). Some interesting observations can be made. First, with the possible exception of Chinese Taipei and Malaysia, there is a clear divide in terms of the average overall GC scores between the developed member economies of APEC (5.22) and the developing member economies (4.52). The gap between the developed and developing member economies in terms of the quality of their infrastructure was much wider than the gap in their overall competitiveness score-5.65 compared with 4.30. Interestingly only four member economies ranked higher for their infrastructure quality than their overall GCI - Hong Kong, China; Canada; Korea and Russia.

More detailed analysis of the infrastructure quality gap was undertaken by the WEF based on its GC methodology for all the economies in Latin America (World Economic Forum, 2007). Considering that a greater unmet demand (a quality gap) for infrastructure makes an economy more attractive for investment, the WEF methodological framework also includes the

Infrastructure Quality Gap Index (IQGI). This index assesses the quality gap in road, port, air transport and electricity infrastructure of a given economy with respect to a control economy, namely Germany, which was chosen in light of its world-class infrastructure development (it ranked 1 in the main GCR Infrastructure pillar at that time).

The three Latin American APEC member economies performances were quite different. Chile presented the smallest infrastructure gap with the control economy displaying the most developed and best quality infrastructure network in the whole of Latin America. In particular, Chile almost matched Germany in the development of its port infrastructure (with a score of 0.90). On the other hand, road (3.16) and, to a lesser extent, electricity (2.95) infrastructure was assessed as less developed and therefore offering more investment opportunities. Thanks to the good quality of its infrastructure, Mexico scored rather low (2.68, 10th) on the IQGI, lagging behind only El Salvador and Chile. Mexico's electricity (3.28) and air transport (3.14) infrastructures appear to offer the most opportunities, while the gap is narrower for port (1.21) and, to a lesser extent, road infrastructure (2.99). Peru presented the second highest infrastructure gap (5.49) in the region after Bolivia, with significant opportunities for private investment especially in road (4.67), air transport (4.38) and electricity (4.23) infrastructures.

Table 2.3: Ranking and Score of Global Competitiveness Index and Infrastructure Quality Assessment of APEC Member Economies in 2011-12

Economy	2011-2012			
	GCI		Infrastructure	
	Rank	Score	Rank	Score
Singapore	2	5.63	3	6.33
United States	5	5.43	16	5.68
Japan	9	5.40	15	5.69
Hong Kong, China	11	5.36	1	6.71
Canada	12	5.33	11	5.88
Chinese Taipei	13	5.26	20	5.62
Australia	20	5.11	24	5.43
Malaysia	21	5.08	26	5.22

Korea	24	5.02	9	5.94
New Zealand	25	4.93	34	4.97
China	26	4.90	44	4.63
Brunei	28	4.78	56	4.23
Chile	31	4.70	41	4.67
Thailand	39	4.52	42	4.65
Indonesia	46	4.38	76	3.77
Mexico	58	4.29	66	3.98
Viet Nam	65	4.24	90	3.59
Russia	66	4.21	48	4.52
Peru	67	4.21	88	3.62
Philippines	75	4.08	105	3.09

Source: World Economic Forum, 2011

TRENDS WITH RESPECT TO INFRASTRUCTURE GAP IN THE FUTURE

As discussed above, the infrastructure challenges facing all APEC's member economies over the next decade are substantial. On the positive side, unlike the situation that occurred post the Asian Financial Crisis in 1997, economies have not wound back their infrastructure spending plans in response to the global economic downturn. Instead they saw the folly of that approach and so in the immediate aftermath of the GFC in 2009/2010 economies launched substantial fiscal stimulus packages. Most of these packages included varying commitments of more planned resources to long term infrastructure spending because of the likely substantial multiplier effects on employment and growth as bottlenecks are removed.

At that time the global economic outlook for recovery in 2011/2012 was rosier based on a belief that fiscal and monetary policy adjustments already made and planned would "rebalance" on two important fronts:

- internally in the advanced economies from fiscal stimulus to private demand; and
- externally such that economies like the US with current account deficits would switch from domestic demand to external demand and emerging economies like China with

large current account surpluses would switch from foreign demand to domestic demand.

Slower than anticipated growth in 2011 plus greater fiscal and financial uncertainty in recent months added to the stalling of the necessary rebalancing noted above, has left economic recovery uncertain and in the absence of strong policies to get rebalancing back on track, economies very vulnerable to further contraction in activity (IMF, 2011).

In the short term at least, what this means is that the gap between demand and supply of infrastructure in both developed and developing member economies will continue to grow because of heightened uncertainty in equity and capital markets generally, fiscal consolidation by economies and continuing tight bank lending conditions affecting private sector infrastructure investment. More focus will be required on implementing policies underpinning an enabling environment for long term infrastructure investment. This will need to address existing constraints notably through:

- expanding existing delivery capabilities of bankable infrastructure projects in all economies but especially the developing member economies-this will require concerted, coordinated action on a regional basis with MDBs and bilateral development banks to be most effective.
- identifying and mitigating investment risks and developing more innovative, lower risk financing mechanisms for increased private sector participation in infrastructure investment.
- broadening the financial base through a mix of improvements to local currency bond markets in APEC's developing member economies and a more strategic approach to planning including the establishment of separate, regional infrastructure investment funds aimed at large, long term infrastructure development.
- continuing to implement "soft infrastructure" trade and investment facilitation measures (TFAP and IFAP II) such as customs modernisation, regional logistics and connectivity enhancement, streamlined business regulation as a complement to improvements in the physical infrastructure.

3. FACTORS THAT NECESSITATE PPPS

Goods and services can be procured by government in many different ways that may variously involve the private sector. Public service provision does not imply that government is necessarily the producer of the goods or services though it may be responsible for the design, construction, financing and operation of capital assets and the services that these assets generate. In practice, as we know, most government services are provided with assets that governments buy from the private sector or through contracts where the government specifies the assets (buildings, computers, dams, roads, power plants, military equipment etc) and private companies build them. There may also be separate contracts with private

companies to undertake maintenance or advisory services. This conventional procurement accounts for about 85 per cent of the goods and services governments buy from the private sector but none of these arrangements are a "public-private partnership".

As we discuss in section III/2 later in this report, the first divergence from this conventional procurement model for infrastructure services came in the 1980s and 1990s with the major privatization of government owned assets in sectors such as telecommunications, electricity generation and transport. The main motivations for this sell-off appeared to be fiscal consolidation and the need to pay off accumulated debt, continuing poor performance of state-owned enterprises (SOE) and to some extent rapid technological change which had dramatically altered competitive conditions in previous monopoly markets. When government budgets went back into surplus again, the privatization surge abated. While there was community disquiet with the scale of the privatization program in many economies, evidence was gradually produced that "reform" of previously state controlled infrastructure services had resulted in better, more competitive and efficiently-run services by the private sector.

Economic growth, population growth and demographic change and environmental pressures were key factors in increasing demand for more and better quality infrastructure at a time when government expenditure on infrastructure was in decline as a proportion of GDP. There were competing demands with greater priority both for public finances (health, education, aged care) and scarcer government human resources (in decline as the size of government was also being reduced). The congruence of sharply increased demand for infrastructure, tighter government budgets under pressure to fund many more new services, changing government and community attitudes to the benefits of private sector participation in the provision of infrastructure services and increasing sophistication of financial markets more capable of providing the required project financing, created an almost irresistible force to consider new ways to involve the private sector in infrastructure investment.

Not surprisingly the frontrunners in seeking more innovative ways to involve the private sector in infrastructure investment were some of APEC's developed member economies, notably Canada, Australia and Korea. Encouraging private investment in infrastructure was considered by these economies at least, an option they could not afford to ignore. There was also the strongly held view by some member economies that private sector participation (often through overseas companies) could bring many other benefits apart from additional capital such as their technological expertise and managerial and organizational competences. There was also the end-user benefit of a more competitive environment.

General improvements in government procurement policy also occurred in the last decade or so. Improved transparency, competition in the bidding process as well as concepts like value for money became the norm. There was also stricter application of objective cost-benefit assessments of the choice between public and private provision of infrastructure services. A significant body of evidence over an extended period of time in many economies indicated

that traditional procurement methods for complex social and economic infrastructure projects had been ineffective (e.g. Allen Consulting Group, 2007; Mott McDonald, 2002; NAO, 2003). Lowest priced tender processes were shown to produce cost and time overruns in both Europe and Australia. Procurement was not the problem-the failure was in government with inadequate preparation of the business case, incomplete design specification with little innovation, optimism bias (the overestimation of benefits and underestimation of costs) and the separation of the design and construction operations. The list of failed traditionally procured social infrastructure projects was a long one.

PPPs were seen by the front-running APEC member economies as offering several benefits that made their increased use very attractive-they were never seen as ever being able to fully replace traditional financing and development of infrastructure. These benefits are detailed in section III/2 but included:

- the costs of the investment could be spread over the lifetime of the asset so projects could be advanced by years in some cases compared with traditional procurement;
- the transfer of certain risks to the private sector and more incentives for assets to be properly maintained;
- lower costs of infrastructure by reducing both construction costs and overall lifecycle costs;
- stronger customer service could be built into the contract improving service quality; and
- very importantly, the public sector was able to focus on the outcome-based public value they were trying to create plus they could ensure a proper enabling environment once the asset was in service.

The strength of PPPs lies in the partnership that develops-the government contributes some capital but importantly government also provides social responsibility, environmental awareness, local knowledge, and an ability to mobilize political support. The private sector contributes investment capital, expertise in commerce, management, operations and innovation to run the business efficiently. The structure of the partnership is designed to allocate risks to the partners who are best able to manage those risks and thus minimize costs while improving performance.

A further strength of PPPs concerns the incentive structure. Under traditional procurement, governments have little incentive for efficiency structured into its organization and processes. On the other hand the PPP creates an investment or contracting opportunity for the private sector partner with the clear goal of maximizing profits, which are generated, in large part, by increased efficiency in investment and operations.

A factor that necessitates the use of PPPs is their use as a catalyst for sector reform through a reallocation of roles, incentives, and accountability. Reform steps to support the new

allocation of sector roles such as laws to set up a new regulatory and policy arrangement are often forced when implementing a specific PPP project.

PPPs have become an essential pillar for economic growth in the APEC region with most APEC member economies using them for many economic and social infrastructure projects. Their use is expected to grow in the next twenty years as economies attempt to redress the infrastructural investment 'gap'.

Infrastructure projects are heterogeneous in nature in terms of the capital value, development timeframe and the risks and uncertainties. This requires PPPs to be innovative and flexible as far as the financial modeling and asset ownership of infrastructure delivery vehicles going forward is concerned. Infrastructure as a separate asset class is increasingly being included in the strategic asset allocation opportunity set of institutional investors like pension funds and insurance companies. The emergences of listed and unlisted infrastructure funds offer these institutional investors greater opportunity to diversify their portfolios with infrastructure investment holdings.

III. HOW PPP CAN ADDRESS THE INFRASTRUCTURE GAP

1. INFRASTRUCTURE INVESTMENT

Public investment in infrastructure involves the government allocating labour and capital (thereby forgoing current consumption) to create increased future production capacities and income through building new or maintaining existing long-lived physical assets. This may relate to economic infrastructure such as power plants, transport networks, airports and ports, and dams, or to social infrastructure such as hospitals, prisons or schools. It does not mean that the government actually builds these assets, produces goods or supplies the services. Governments may contract with the private sector in many different ways to provide or maintain these assets, goods or services. In fact this is how most government services are provided in APEC member economies with the variation only in the mix of different contractual arrangements.

For example, under traditional procurement, the government may enter into a relatively simple design and build contract with the private sector to construct say, a power station. Once the asset is built, the government takes over responsibility for operating and maintaining the plant. To handle ongoing operations and maintenance, the government may then enter into separate contracts with other private sector suppliers. Under a PPP these separate phases of the project are bundled into one contract under which the private sector entity provides not just a completed power station but a flow of infrastructure services over a set period of time under a long term lease or 'concession'. Once the concession period is over, the government takes back ownership of the power station from the private sector. PPPs therefore should be seen as one 'hybrid' form of public procurement distinct from conventional procurement, concessions and full privatisation.

This section will explore some of the more popular methods of public investment in infrastructure and how the private sector is involved and the pros and cons of the different procurement methods.

A recent Australian issues paper on infrastructure finance reform noted a very important but subtle distinction between the financing and funding of infrastructure investment:

“infrastructure finance” ... refers to the manner in which capital is raised for the purpose of constructing an infrastructure project. ... “infrastructure funding” refers to the manner in which that initial sum of capital (whether debt or equity) is repaid. In regards to the latter, it is also worth bearing in mind that there are two fundamental sources of funding for infrastructure: either an allocation from general taxation revenue or direct user charges.”(Infrastructure Australia 2011)

Many different factors such as level of development, fiscal and macroeconomic conditions (i.e. budgetary consequences), individual characteristics of infrastructure (affecting possible

user charges), domestic institutional arrangements and prevailing views (especially voters expectations) about the role of government in the economy can influence how governments choose to finance infrastructure and the particular choice of financing vehicle. Notwithstanding the emergence in the past decade or so of new innovative private sector infrastructure financing, the reality is that a large proportion of infrastructure investment (over 80 per cent in even the most mature public-private markets such as the United States, Australia, Korea and Japan) is still made by governments in two main ways—‘pay-as-you-go’ (cash flow) financing from current operating incomes or capital-market financing — based on borrowings or equity contributions from private sources.

CASH FLOW FINANCING

This comprises financing infrastructure through general budget appropriations derived from taxes and service (user) charges, special development levies, specific reserves for general or specific investment purposes; asset sales proceeds (privatisation) and payments/grants to lower levels of government based on current revenues or savings within the public sector. In response to budget and financial management reforms (output-based budgeting and accrual accounting), as well as pressures for greater fiscal discipline (pressure to run budget surpluses), the use of budget appropriations has declined in recent years.

Much of government spending on infrastructure is now "off-budget" being conducted through government owned, commercially-run businesses (GBEs or SOEs), often at lower levels of government. Their chosen procurement method is predominantly traditional though in recent years there is evidence of an increase in outsourcing and relationship contracting. Most APEC member economies have GBEs but their importance to infrastructure investment varies considerably. Their source of funds includes retained earnings, occasional equity contributions from the government but primarily through borrowings on domestic capital markets through a variety of instruments. The relative importance of GBEs has tended to decline in most APEC member economies as the government has sought to sell many of them to the private sector.

The ability to increase public infrastructure spending by either apportioning a larger share of tax revenue or by raising taxes depends largely on the relative importance of total taxation revenue as a proportion of GDP. In APEC's developed economies total taxation revenue represented the following proportions of GDP in 2005: Australia (30.9), Canada (33.4), New Zealand (37.8) and United States (27.3). By contrast, in 2009, in some of APEC's developing member economies the proportions are much lower suggesting a much smaller pool of taxation revenues available to finance infrastructure spending and lower taxing potential to increase such investments going forward: Indonesia (11.6), Malaysia (15.7), Philippines (12.8), Thailand (14.6) and Viet Nam (20.3). Moreover, the size of tax revenues relative to GDP in many Asian economies has not increased over the last 20 years, with the exception of Viet Nam. (OECD, 2010)

This comprises in the main the borrowings of government or government owned entities and GBEs at central, state/region or local/municipal level. Such borrowings may be "traditional" for general purposes out of which public infrastructure projects are financed, or special purpose debt (earmarked for specific projects). The debt can be in the form of bonds (with or without special tax exempt status), treasury notes or commercial paper.

The developed economies of APEC (especially Australia, Canada, New Zealand, United States, Japan and Korea) have well established bond markets and public and private bond issues compete against each other. In developing member economies with much less developed or inefficient capital markets, unstable exchange rates, high interest rates and sub-investment grade sovereign credit ratings this type of borrowing is far more limited. So-called general obligation infrastructure bonds issued by central, regional or local authority seeking to raise capital for a specific infrastructure project are usually secured against the assets of the issuer and in some cases may be guaranteed by a higher level government.

Many APEC economies have used another financing variant called infrastructure revenue bonds-the key difference from traditional general obligation bonds, is that investors receive coupon and interest payments from the toll revenue stream. Infrastructure revenue bonds have been encouraged for short periods in economies like Australia and more widely in the United States, Canada, New Zealand, Chile and Malaysia.

In the United States, its current legislative framework allows state and local governments to issue tax exempt bonds for investment in urban transport and intercity rail services, ports and airports, waste management systems, energy, schools and public housing. The United States, *Recovery Act of 2009* introduced "Build America Bonds", which are taxable bonds issued by municipalities for funding of infrastructure called where the US Treasury Department pays a direct subsidy of 35 per cent of the interest costs to the issuer. By May 2010, over US\$106 billion of these bonds have been issued. The *Transportation Infrastructure Finance and Innovation Act* also provides for direct loans, loan guarantees and supplemental lines of credit for up to 33 per cent of qualified transport projects of regional and national significance.

There have been recent examples of infrastructure revenue bonds being utilised by APEC for projects in the transport sector, notably the Hong Kong Link 2004 whereby toll revenue bonds were used to securitize revenues from five government owned toll tunnels and the Lantau Link in Hong Kong, China; and a revenue bond scheme is planned for the new construction of the Intercity Motorways Network in Bangkok.

Another project financing strategy presently a feature of European capital markets to overcome the problem of small project size is to issue public sector covered bonds which pool loans to central, regional and local governments from a number of smaller infrastructure

projects which are either guaranteed by the relevant governments or by the cash flows from commercial infrastructure projects.

ODA FUNDING

While not strictly public funding in the classic sense (i.e. provided from within the domestic government sector), it has been decided to include the discussion of the contribution of ODA to infrastructure development in this section. ODA comprises bilateral ODA from one donor economy to another donor economy and multilateral ODA from institutions like the World Bank Group and other regional development banks such as the Asian Development Bank (ADB). As you might expect, most APEC developed economies are significant ODA donors including to recipient developing APEC member economies. Japan is a major donor to both Indonesia and Viet Nam as is Australia to Papua New Guinea. China is becoming a major donor but is still a net recipient of ODA. As a proportion of gross national income, ODA represents a major factor for Indonesia, PNG and Viet Nam. In key infrastructure sectors, ODA seems to feature most in the energy and water and sanitation sectors with the main recipients being Indonesia, China and Viet Nam. In some developing member economies such as PNG and Viet Nam, ODA's relative contribution is comparable to that of FDI inflows while in some others like Indonesia, the Philippines and Peru it makes a less important contribution than FDI.

The overly cautious approach to financial market management and incurring foreign debt post the Asian financial crisis caused Asian economy foreign exchange (FX) reserves to burgeon. Between 1990 and 2008 Asia's FX reserves in inflation-adjusted terms grew from US\$267 billion to US\$2,697 billion reflecting average annual nominal growth of 16.9 per cent. Several APEC member economies in Asia accumulated substantial foreign exchange reserves held by central banks which were legally bound to invest them so as to preserve capital and liquidity at minimal risk. In practice this meant that these large FX surpluses were invested in low risk US and European government securities.

As these FX reserves came to greatly exceed the prudent needs of central banks' for maintaining exchange rate and financial stability, part of the surplus was directed into sovereign wealth funds (SWFs). These "future" funds held monies in trust for an economy's present and future citizens with a duty to preserve the principal and earn a "reasonable" return. In principle, infrastructure projects that offer attractive financial returns at an acceptable level of risk could attract SWF financing. Some of APEC's developed member economies have also set up SWFs primarily because of windfall export earnings from natural resource exploitation (e.g. Australia and Canada).

A practical policy approach is needed to consider how to utilise this potential source of government funding for long term infrastructure investment in APEC's developing member economies.

1.4 RECENT FOREIGN PURCHASES OF LCY GOVERNMENT BONDS IN ASIAN FINANCIAL MARKETS

Foreign purchases of LCY government bonds in many Asian financial markets are not a new phenomenon but the scale of recent activity certainly is. Evidence from the ASEAN 5 market (IMF 2011) shows that foreign investment in ASEAN5 bonds was minimal with only 2 per cent of ASEAN5 government bonds in 2004 being held by foreigners. But the situation is rapidly changing. Foreign holdings of emerging market local currency bonds had begun increasing starting well before the global crisis. By 2007, foreign holdings had passed 8 per cent; by, 2008, they had reached 12 per cent; and after a brief dip during the global crisis, they surged, to 18 per cent by the end of 2010. Within total foreign holdings of domestic LCY government bonds there was a major compositional shift away from bank loans and FDI toward portfolio investment.

ADVANTAGES AND DISADVANTAGES OF CASH FLOW FINANCING

General budget appropriations are exposed to ongoing political scrutiny and monitoring through the parliamentary or congressional process thereby adding transparency and accountability to on-budget government infrastructure financing activities. Together with improvements in the quality of public budgeting across many APEC member economies, these reforms have the effect of reflecting the full costs of asset acquisitions and related future liabilities in government balance sheets. Another perceived advantage is that the transactions costs are low compared to most other financing vehicles. A final advantage of this type of financing is that the use of intergovernmental transfers can address fiscal imbalances and inequities across states/regions within a member economy. On the negative side, general taxation can distort economic decisions and carries deadweight costs arising from tax administration, compliance and enforcement and the opportunity costs on taxpayers with lower disposable income.

While in theory an advantage of moving procurement to GBEs gets such spending off-budget, this move appears not to have resulted in real efficiency gains. Indeed a number of studies of GBE traditional contracts in Canada and Australia (Mott, McDonald 2002, Allen Consulting 2007) have pointed to poor user satisfaction at service levels, and lower service delivery outcomes. Some of the reasons for this include a lack of competitive performance benchmarks, inefficient labour practices and over-employment, lack of innovation and adoption of new technology and bad asset allocation decision combined with no continuous quantitative monitoring of performance.

In looking at the total cost of financing an infrastructure investment project, the funding decision is important. Funding from current revenue brings the cost forward onto current taxpayers. Budget appropriations funded by general public borrowings defers this funding burden to taxpayers in future years, but at a cost of debt interest payments. The most efficient approach to building the asset is certainty in the availability of cash which may not always

occur when budget appropriations are used as the main financing vehicle. Moreover, incentives to pursue efficient pricing policies for infrastructure services including the option of user charges could be reduced where grants and intergovernmental transfers cover a large share of the capital costs. Unless federal priorities match regional level priorities, the potential for economic efficiencies will arise. Full public funding can reduce the scope to allocate project risks to those best able to manage them.

The use of general obligation infrastructure bonds may increase exposure of government-owned entities to market disciplines and more equitable cost spreading. The benefits of infrastructure revenue bonds include providing an objective project viability market test; encouraging full cost pricing of the service; facilitating shared financing with other private sector arrangements such as PPPs; and transferral of economic risks of operation to investors without loss of ownership and control. However, tax-advantaged revenue bonds have drawn criticism for distorting market mechanisms, encouraging rent-seeking activities and imposing costs on taxpayers who do not directly benefit from the infrastructure asset. Their use to finance quasi-social infrastructure such as entertainment venues or sports stadiums has also been criticised on efficiency grounds. The fact that claiming the tax exemption is restricted in many APEC economies (e.g. the US Build America bonds noted above) for certain institutions such as superannuation and public and private pension funds also weakens the potential benefits of infrastructure general obligation or revenue bonds as a financing vehicle.

IMPACT OF THE GLOBAL FINANCIAL CRISIS

Conditions during most of 2007 saw debt financing being readily available and financial institutions having excess capital. Capital markets were highly liquid and banks could easily obtain balance sheet funding to lend out and there was very strong competition for infrastructure deals. Credit wrapping (a type of credit enhancement whereby a bond insurer guarantees to meet interest and principal payments if the issuer cannot) was prevalent.² Other derivatives like CPI-linked bonds and interest rate swaps provided hedges against inflation and interest rate risks. Key risk factors (eg demand risk) for new greenfield infrastructure investment deals were aggressively bid and there was often high leveraging with multiple debt layers on longer agreed lending terms. In the first half of 2008, 380 project finance deals reached financial close valued at US\$157.1 billion (up from 342 and US\$143.9 billion a year earlier).

At the height of the GFC, infrastructure project borrowers faced radically different global and local financial markets characterised by much tighter lending controls by banks, less foreign

² Credit wrapping involved lower-rated (generally BBB) infrastructure related bond issuers (airports, utilities) seeking a higher rating on their bonds by having them insured by specialist US financial guaranty insurers, also known as monolines (usually AAA or higher rated). As the rating of a credit-wrapped bond is generally set at the higher of the insurer or issuer's rating, it allowed these infrastructure investments to issue at longer maturities and lower interest rate spreads than otherwise.

bank funding as they retreated to their domestic markets, the closure of bond and syndication markets and a general lack of confidence. This meant less debt available for project funding, clubbing of banks for all but the small projects, rising risk premiums, more conditions on debt during the procurement phase (e.g. market disruption clauses) and a general shortening of long term bond paper to support project financing leaving heightened refinancing and demand risk. Inevitably this led to project cancellations and deferrals. The number and value of global project finance deals in the first half of 2009 fell sharply to 247 deals valued at US\$84.4 billion.

All APEC member economy financial markets were affected by the GFC fallout some more than others. The global financial crisis became a broader macroeconomic crisis in the third quarter of 2008 with the Lehmann Brothers collapse and governments having to rescue ailing financial institutions. Growth, trade and capital flows plummeted in all of APEC's developed economies and emerging economies and growth prospects deteriorated in all other developing member economies. Scope to use monetary policy was much reduced by the collapse of financial systems in many economies with policy interest rates at or close to the zero nominal interest rate floor. So global focus turned to fiscal policy as the prime policy tool to prevent the global economic downturn worsening. At the November 2008 G-20 Summit in Washington, DC, the leaders of the G-20 economies looked to coordinate fiscal policy responses to "stimulate domestic demand to rapid effect, as appropriate, while maintaining a policy framework conducive to fiscal sustainability."

Most APEC member economies responded by announcing significant fiscal stimulus packages in late 2008 and early 2009 for the 2009-2010 period. The size, design and composition of APEC member economy fiscal packages, both in terms of the composition of individual measures as well as their timing, varied considerably. The United States had the largest fiscal package at about 5½ per cent of 2008 GDP. Four other APEC developed member economies introduced fiscal packages amounting to 4 per cent of 2008 GDP or more (Australia, Canada, Korea and New Zealand). China reacted quickly to falling GDP growth after the GFC with a stimulus package and monetary expansion. With debt comprising only 20 per cent of GDP, China felt able to expand fiscal policy by US\$586 billion (14 per cent of 2008 GDP) for 2009 and 2010. The primary targets of the stimulus package were infrastructure investment and social welfare and loan guarantees and support for lending by government-owned or sponsored financial institutions.

As with China and other Asian economies, the ASEAN economies began to put in place fiscal stimulus measures soon after their downturns began. Malaysia and Viet Nam led with adoption of a first set of measures in November and December 2008 respectively, and were followed by Thailand, the Philippines and Singapore in January 2009 and Indonesia in February of that year. The aggregate of the stimulus packages adopted by the six economies of ASEAN amounts to an average 4 per cent of their 2009 GDP. The primary focus of the stimulus plans of Asian economies was on direct government spending and less on tax cuts

than those adopted by OECD economies. The ASEAN economies in particular directed planned spending primarily into infrastructure investment. Malaysia and the Philippines emphasised large-scale infrastructure spending on projects that are consistent with their longer-term development objectives. Considerable emphasis on personal and business tax cuts was a feature in the plans of Indonesia and Singapore while Thailand, Malaysia and Viet Nam focused on sustaining lending to small and medium-sized businesses.

In summary, the design of APEC member economy fiscal stimulus packages balanced well the potential to both raise aggregate demand in the short run as well as aggregate supply in the long run.³ Moreover in terms of planned infrastructure investment, the focus was on projects which were “shovel-ready” or where repair and maintenance could readily be brought forward. This helps to avoid the typically long implementation lags normally associated with infrastructure investment stimulus.

For the first half of 2010, the total number of project finance deals to reach financial close came in at 220 with a total valuation of US\$99.7 billion. Recent equity and financial market volatility in 2011 reflects a newer problem-burgeoning public sector debt especially in the US, Japan and the Euro zone and deteriorating growth prospects. Periods of instability are therefore likely to continue but there is evidence that there remains demand for the right type of infrastructure projects.⁴

Some of the high level challenges facing governments and investors looking to finance infrastructure existed well before the GFC came along. For example, capital markets in some developing APEC member economies are under-developed and cannot convert pools of domestic savings into long-term financial instruments needed to support infrastructure. Reducing the risks arising from foreign exchange exposure by a borrowing economy when it seeks to utilize foreign funds is another high level challenge that pre-dated the GFC.

The financial market environment in 2011 including the deteriorating fiscal positions in many APEC developed economies has certainly complicated the abovementioned high level challenges in meeting the infrastructure needs of APEC's member economies in the APEC region. It requires a concerted, coordinated approach from national governments and the multilateral development banks and multilateral institutions like APEC to reduce and allocate efficiently project risk through:

³ A recent OECD report (OECD, 2009), identifies three broad fiscal/structural reforms that could yield a “double-dividend” in terms of maximizing the multiplier effect of fiscal stimulus: increased spending on infrastructure; increased spending on active labor market policy, including on compulsory training courses; and reduction of personal income taxes, notably on low-income earners.

⁴ The experience of Australian state, Victoria, which has a mature PPP market, showed that PPPs can be successfully closed in the more conservative market conditions of post 2009. During this time a number of PPPs have closed valued at over US\$10 billion in a variety of sectors ranging from biosciences, water desalination, new schools, a new toll way and a new prison.

- more credit guarantee, viability gap funding and where necessary direct loans;
- a better sharing of the attendant refinancing risk;
- government's replacing the previous role of the monoline insurers and underwriting a sufficient proportion of the project financing to lower the cost of raising capital to that of investment grade;⁵
- improving the way demand forecasts are made to reduce the seeming inbuilt optimism bias;
- establishing within member economies pipelines of suitable infrastructure projects for private sector investment;
- increasing the transparency of member economy legal framework especially ensuring effective laws and regulations regarding contract enforcement; and
- common approaches to procurement procedures.

Some of these themes recur in the later discussion about how to encourage greater PPP projects in the post-GFC financial market environment.

Multilateral development banks such as ADB and the World Bank, and bilateral agencies such as the Japan International Cooperation Agency (JICA) are already playing an important role in infrastructure development through the funding of various infrastructure projects. These institutions can contribute further to bridging financing gaps by mobilizing long-term funds through capital markets, explicit guarantees, and special co-financing arrangements. MDBs can also encourage private sector participation through introducing innovative financial instruments useful for PPP projects and assisting economies to improve the business environment through developing appropriate policies, regulations and institutions.

Global stock market turbulence and rising volatility has fed investor fears and prompted safe haven flows into gold, the bonds of higher rated corporates with strong balance sheets, long-dated US treasuries, Japanese yen, and Swiss francs. The sovereign debt crises in mature markets and the potential impact on the wider economy have led investors to re-think their definitions of risk-free and risky assets. Furthermore, investors are now factoring in an extended period of weakness in the US and other mature economies. This worrying macro backdrop is likely to continue dampening investor sentiment in the medium-term.

⁵ The proposed *Europe 2020 Project Bond Initiative* operates like monoline insurance by utilizing public funds to underwrite up to 20 per cent of a project's bond issue.

Government funding of infrastructure investment generally declined throughout the 1980s and 1990s to be augmented by private sector funding (from domestic savings) in its various forms ranging from:

- bank lending to invest directly in infrastructure projects or companies;
- purchase and issue of bonds as part of infrastructure project financing. This has taken many innovative forms;
- the purchase of equity including by foreign investors through FDI in infrastructure;
- in various different forms, entering into public private partnership agreements to build, own, operate new greenfield infrastructure projects-PPPs.
- outright purchase of existing state owned infrastructure assets through privatisation;

APEC's developed economies have been able to tap domestic savings far more easily with a full range of financial instruments available in well-developed financial markets including local currency (LCY) bond markets where the government and corporate sectors are both participants. There have been implications for these markets arising from the tighter conditions during the period following the GFC-this was taken up in more detail in the previous section above.

The ensuing discussion focuses on the availability of finance in Asia which includes several of APEC developing member economies.⁶

The Asian financial crisis in 1997–1998 left many Asian economies cautious about investing in assets that would generate revenues in local currency with funding from large scale commercial borrowing in foreign currencies. While Asian economies were prepared to actively encourage FDI in export related manufacturing, they were loath to increase their dependence on foreign capital to finance much needed infrastructure investment. Instead they focussed on supplementing public investment budgets by tapping domestic savings, through the various means mentioned above such as PPPs as well as by allowing state-owned infrastructure companies to raise debt and equity from domestic markets.

The domestic savings of the private sector make up about 30 per cent of infrastructure financing in a large number of member economies. With the exception of the Philippines, all of APEC's Asian member economies had gross domestic savings ratios to GDP in 2009 of about 30 per cent or more. In theory then, if all domestic savings were directed to infrastructure investments, there would easily be enough to finance their needs. But savings in

⁶ The source of much of the information presented here about LCY bond markets comes from the ADB's Asian Bonds Online data base and the category "Emerging East Asia" which includes People's Republic of China; India; Indonesia; Republic of Korea; Malaysia; Pakistan; Philippines; Chinese Taipei and Thailand - all APEC members except India.

these economies are not presently being directed into infrastructure development within the region and less than 10 per cent of savings are being invested in domestic financial and equity markets. Some 43 per cent is used to purchase overseas government bonds, such as US treasury bills and stocks and another 37 per cent to buy European financial instruments. (OECD 2010)

Most of Asia's domestic savings are not at the disposal of the region's governments. Governments control savings generated by budget surpluses and profits earned by publicly controlled enterprises and banks. The rest of Asia's domestic savings are held by private individuals and businesses who invest in domestic financial markets so governments can only tap them by offering higher than market returns. Moreover private capital flows into Asia are mainly short term investments from the US (37 per cent) and Europe (30 percent) with less than 20 per cent coming from within Asia itself.

In support of private sector-led infrastructure growth, a healthy banking sector and developed local capital markets play an important role. Traditionally, commercial banks have been the main suppliers of long-term financing in Asia to private investors in infrastructure projects relying heavily on short-term deposits to meet their funding requirements. In a weak banking environment, such a practice exposes the banking sector to systemic risks-evidence of this is the impact of the Asian financial crisis which led to sharply reduced lending for infrastructure investment.

There are many other reasons why private sector investment in infrastructure in Asia has been low besides the lack of long term local currency financing. Corruption, poor governance practices, weak accounting and inadequate disclosure standards, weak securities laws, poor contract enforcement regime, reluctance to honour concession agreements and weak tariff regulation have made private investors and project lenders hesitant to make continued commitments for fear of breaches of contractual obligations and government intervention. Investors and lenders also bear the risk related to the enforceability of obligations of host governments, especially with reference to concession arrangements as there is some doubt about how developing economy courts will treat sovereign contractual obligations.

Traditional methods for private project financing of Asian infrastructure investments face considerable limitations and market players are looking for more bankable solutions. The focus has therefore turned to Emerging Asia's bond markets which are improving but still not generally regarded as well developed.

Asian financial markets are dominated by banks, many of which are linked with global interbank markets. Asian sources of capital (generated by high local savings and high export earnings) are moved in and out of global interbank markets by the banks. When capital comes

back into Asia it can return either through banks or as equity contributions on stock markets or as FDI. Export led growth and private sector construction in many Asian economies has been successfully supported by this "out and in" pattern of capital flows. Very large growth in official reserve assets have resulted, as authorities accumulated reserves and successfully kept prices under control through sterilization. Also, banks built strong capital bases, improved efficiency and profitability, and reduced non-performing loans.

This systemic development of Asia's financial markets, however, tended to retard the development of deeper regional capital markets where local lenders and borrowers could trade across the full range of maturities at rates reflecting local supply and demand conditions. Added to this weak impetus to develop capital markets were other regulatory and institutional failings including restrictions on cross border investments, lack of institutional underpinnings, and poor disclosure rules. Institutional investors were also largely missing as market participants. A lack of legal harmonization between economies kept markets largely isolated from each other.

The out and in pattern of capital flows is changing but only gradually. As demand for private participation increased the tools to support private funding began to be fashioned. Asia's local capital markets are deepening with incremental growth of equity and bond markets especially local currency bond markets. Securitisation is also being introduced to channel investments into new areas. Contributing in part to more open and deeper capital markets have been changes to government regulations in areas such as legal and regulatory oversight and corporate governance based on international standards and best practices. Even then, as more effective capital markets are built, there is still a need for supplementary public investment initiatives and guarantees to promote the desired types of infrastructure investment.

Some measure of the growth in Emerging East Asia's local currency bond markets in the past 15 years, is given in Table 3.1 below:

Table 3.1: Bonds Outstanding in Major Markets (US\$ billion)

Economy	2010		1996	
	LCY Bonds Outstanding	% of World Total	LCY Bonds Outstanding	% of World Total
United States	25,349	38.8	10,926	42.9
Japan	11,723	17.9	4,456	17.5
Emerging East Asia:	5,210	8.0	531	2.1
PRC	3,052	4.7	62	0.2

Korea	1,149	1.8	283	1.1
Indonesia	107		7	
Malaysia	247		71	
Philippines	73		28	
Singapore	179		25	
Thailand	225		19	
Viet Nam	16		-	

Source: Asian Development Bank *Asia Bond Monitor* September 2011

Emerging East Asia's LCY bond market has grown tenfold since 1996 to reach US\$5.2 trillion in 2010 and collectively these economies (which includes 8 APEC's developing member economies) now have a LCY bond market about half the size of Japan's and 8 per cent of the world market. Further analysis of recent trends in Emerging East Asia's LCY bond markets reveals:

- demand has remained strong as foreign and domestic investors chase yields with relatively strong economic fundamentals, interest rate differentials and upside currency appreciation all key pull factors;
- issuance of new bonds by government sector declined in 2011 while issuance by the corporate sector grew by 10.7 per cent year on year.
- government bonds in 2011 at US\$3.7 trillion still represented 67 per cent of total LCY bonds outstanding;
- the most rapidly growing LCY bond markets in 2011 were Viet Nam, Singapore and Malaysia;
- foreign holdings of LCY government bonds continued to grow through 2011 representing 34 per cent in Indonesia, 22 per cent in Malaysia and 10 per cent in Korea;
- the maturity profile for most emerging East Asian government bond markets remained concentrated at the shorter end of the yield curve with 11 per cent or less of their bonds outstanding in maturities of more than 10 years except for Malaysia and Thailand (15 per cent), PRC, Philippines and Singapore (20 per cent) and Indonesia (40 per cent);
- the maturity profiles of most of the region's corporate bond markets were mostly in the 3-5 or 5-10 year ranges with little exposure to tenors over 10 years; and

- Hong Kong, China; the Republic of Korea; and Thailand all issued inflation-linked bonds for the first time ever in the first half of the year.

However, despite the abovementioned positive developments, LCY bond markets in Emerging East Asia have not grown relative to GDP. An IMF study (IMF 2011) of ASEAN5 bond markets concluded that the main reason LCY bond markets had not grown was because the bulk of LCY bonds are issued by governments and with low budget deficits in these economies for the past ten years, there was no need for them to issue more debt. But this does not explain why the ASEAN5 corporate bond market remained fairly stable at 15-18 per cent of GDP in the past decade. A major factor in the development of bond markets in Latin America had been the growth in contractual savings schemes (pension funds) which increased the demand for long term LCY assets. This dynamic failed to materialise in ASEAN5. Another important factor was the fact that domestic investors also had less need to issue bonds for financing because as export oriented economies they were able to generate more funds internally for investment and through FDI were able to exploit another funding channel.

Infrastructure projects can be financed by bonds that include credit guarantees or enhancements to shield investors from various risks (such as changeable exchange rates and inflation), and protect borrowers from unfavourable changes in servicing costs. New innovative instruments customised to the specific needs of lenders and borrowers need to be created to address various risks and concerns.

At the regional multilateral level, efforts have been made to tackle currency and maturity mismatch. The ASEAN+3 Asian Bond Markets Initiative (ABMI), endorsed at the ASEAN+3 Finance Ministers Meeting in August 2003 aims to develop efficient and liquid bond markets through more effective channelling of the region's abundant savings for Asia's investment needs.

The Asian Bond Fund (ABF) Initiative is another important initiative started in June 2003 by the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP)⁷ to develop Asia's local currency bond markets. Building on the launch of the first stage of the Asian Bond Fund (ABF1) in June 2003, which invested in US dollar denominated bonds issued by sovereign and quasi-sovereign issuers in eight EMEAP markets⁸, the second stage of the Asian Bond Fund (ABF2) was launched in December 2004 to invest in domestic currency bonds issued by sovereign and quasi-sovereign issuers in the same eight EMEAP markets. The objective of the ABF2 funds, which comprised Pan Asia Bond Index Fund (PAIF) and eight Single-market

⁷ EMEAP is a cooperative organization of 11 central banks and monetary authorities in the East Asia and Pacific region. It comprises the Reserve Bank of Australia, People's Bank of China, Hong Kong Monetary Authority, Bank Indonesia, Bank of Japan, The Bank of Korea, Bank Negara Malaysia, Reserve Bank of New Zealand, Bangko Sentralng Pilipinas, Monetary Authority of Singapore and Bank of Thailand.

⁸ The ABF invests in eight EMEAP economies – China; Hong Kong, China; Indonesia; Korea; Malaysia; Philippines; Singapore; and Thailand.

Funds, is to provide a low-cost and efficient product in the form of passively-managed bond funds as well as to catalyse market and regulatory reforms at both the regional and domestic levels. With initial seed money of US\$2 billion, the overall size of the ABF2 funds has grown to US\$4.26 billion at end-September 2011 with all nine funds being open to public investment.

ISLAMIC BOND MARKETS

Unlike conventional bonds with fixed coupon payments, Islamic bonds or sukuk are structured as participation certificates that provide investors with a share of asset returns, making them compatible with the Islamic prohibition of interest payments. As a result, they have become increasingly popular, both domestically in Malaysia and amongst investors from other Islamic nations. The stock of sukuk as a ratio to GDP has doubled since 2001, exceeding 28 percent by 2008. This expansion has given Malaysia a dominant position in the global market, with Malaysian issuances accounting for more than two-thirds of the total US\$130 billion sukuk outstanding. A future consideration is how sukuk might evolve to provide more support for infrastructure.

Foreign direct investment

FDI inflows into many APEC member economies are a major contributor to gross fixed capital formation and as such contribute to infrastructure investments. The importance of FDI varies considerably across APEC member economies as shown in the table below.

As mentioned further below, FDI can be a significant contributor to the privatisation of state-owned assets although some economies have maintained limits on foreign equity in certain strategic companies or sectors.

Global FDI inflows rose moderately to US\$1.24 trillion in 2010, but remained 15 per cent below their pre-GFC average. There is still considerable uncertainty about the future growth prospects for FDI and precisely when global FDI will recover to its pre-GFC level. APEC's member economies performed better than the world average in 2010 including FDI flows to the United States which rose by almost 50 per cent due to a significant recovery in the reinvested earnings of foreign affiliates. However, FDI inflows were still at about 75 per cent of their peak level of 2008. FDI flows to South, East and South-East Asia rose strongly, outperforming other developing regions. Inflows to the region rose by about 24 per cent in 2010, to reach US\$300 billion, rising especially in South-East Asia and East Asia. Similarly, strong economic growth, spurred by robust domestic and external demand, good macroeconomic fundamentals and higher commodity prices, drove FDI flows to Latin America and the Caribbean to US\$159 billion.

Investors from South, East and South-East Asia and Latin America were the major drivers for strong growth in FDI outflows. Outflows from the largest FDI sources - Hong Kong, China and China-increased by more than US\$10 billion each, reaching historical highs of US\$76

billion and US\$68 billion, respectively. Chinese state owned companies continued actively acquiring overseas assets in a wide range of industries and economies, and overtook Japan as a source of outward FDI.

Table 3.2: FDI inflows as a percentage of gross fixed capital formation, 2005-2010

Economy	2005	2006	2007	2008	2009	2010
United States	4.3	9.0	8.1	11.8	7.4	10.8
Canada	10.6	21.1	35.5	16.7	7.4	6.8
Australia	-11.4	13.5	15.8	15.4	9.0	9.3
Japan	0.3	-0.6	2.2	2.1	1.1	-0.1
New Zealand	5.7	17.9	10.2	16.3	-5.7	2.1
Mexico	14.1	10.1	13.6	11.0	8.0	8.8
Chile	27.9	26.1	38.6	36.3	36.8	34.4
Peru	17.7	19.4	23.6	20.6	18.6	18.5
China	7.7	6.4	6.0	5.8	4.3	4.1
Hong Kong, China	90.4	108.5	130.3	140.8	119.2	135.3
Korea	2.9	1.8	0.9	3.1	3.1	2.4
Chinese Taipei	2.0	8.8	9.0	6.4	4.0	2.7
Brunei	26.7	36.1	16.3	12.2	28.3	30.6
Indonesia	12.3	5.6	6.4	6.6	2.9	5.8
Malaysia	14.4	18.6	21.3	16.5	3.7	18.9
Philippines	13.0	17.7	13.8	6.3	8.3	5.8
Singapore	58.3	92.1	88.5	16.0	29.1	69.4
Thailand	15.8	16.4	17.4	11.3	7.7	7.3
Viet Nam	11.6	11.8	24.8	30.4	23.4	22.9

Source: UNCTAD Web Table

http://www.unctad.org/sections/dite_dir/docs/WIR11_web%20tab%205.pdf

These will be discussed in more detail in the next section of this study.

At the far end of the spectrum of potential involvement in infrastructure investment by the private sector is the acquisition of existing brownfield state-owned assets. This represents the purest form of private sector investment in previously state-owned infrastructure. Over the two decades (1980s and 1990s) about one trillion dollars worth of state-owned enterprises were privatised in more than 100 economies. Many APEC developed and developing member economies undertook major privatisations in these two decades and their experience includes a wide range of approaches that reflects each economy's unique economic and political context.

Many factors have underpinned the motivation of APEC member economy privatisation drives during this period including:

- the need to control government spending and debt as fiscal space contracted;
- in sectors such as telecommunications and electricity generation, rapid technological changes have made so-called natural monopoly provision of certain goods and services obsolete;
- dissatisfaction at the continuing poor performance of state-owned enterprises;
- the need to free state owned enterprises from various constraints on their borrowing practices as financial markets became increasingly globalised and access to cheaper funds was necessary to remain or become more competitive; and
- greater acceptance of private ownership of state owned assets together with the view that state ownership of infrastructure assets was not necessarily the best way to provide certain goods and services any longer.

Privatisation can take many forms but the most common is a public share offering of some or all of the shares in an existing asset or business. Domestic retail investors have been a major source of the proceeds from public offerings. Privatisation often starts off with smaller assets in more competitive sectors and the most common assets to be privatised include energy, telecoms, transport and banks. Foreign investors have played an important role in privatisations though in some APEC member economies including Australia restrictions on foreign ownership are case-by-case yet in others like Korea and Mexico there are specific limits in place in certain sectors.

Not all of APEC's developing member economies in Asia by any means have consistently pursued a privatisation program. China and Viet Nam are good examples of this. Even after the Asian crisis of 1997, many economies in the region retained their assets in sectors such as energy, telecommunications, transportation and banking despite forecasts that there would be large state-owned fire sales. By comparison, the privatisation record of Latin America seems remarkable. In the 1990s, Latin America accounted for 55 per cent of total privatisation revenues in the developing world. Of APEC's member economies, Peru undertook the most ambitious privatisation program representing about 16 per cent of GDP, followed by Mexico (nearly 8 per cent) and Chile (4 per cent). However, from being the most active region in the 1990s, Latin America virtually halted its privatization process in the decade that followed. The privatisation impetus has also faded in most other regions, and the amount of assets still in state ownership should not be underestimated.

Renewed calls have come for a fresh round of privatisations in the next few years as a policy response to declining fiscal space due to economies winding back deficits created by stimulus responses to the severe economic contraction in 2008/09 and the huge infrastructure investment needs of APEC's developed and developing member economies.

ADVANTAGES AND DISADVANTAGES OF PRIVATE FUNDING

APEC's member economies face large infrastructure financing requirements over the next 20 years and the simple fact is that the public sector alone does not have the necessary financial resources. Increasingly therefore member economies will have to look to the private sector to make good this funding shortfall. The biggest advantage of private sector funding is it is in plentiful supply. Its main disadvantage has been the difficulty in harnessing private domestic savings effectively as a source of long term infrastructure finance. To attract more private investors in infrastructure project financing, it is critical to address the double mismatch problem:

- Bank loans are the main financing vehicle for most Asian debt but these are often short term and accompanied by significant refinancing risks; and
- Project revenues are generated in local currency but financed in foreign currency. Thus, exchange rate fluctuations and limited convertibility of local currency impose additional burdens on foreign investors and financiers.

An integrated, innovative and efficient capital market is essential for free movement of capital across Asia for infrastructure development. Development of bond markets, particularly local currency bond markets, is one of the ways to reduce foreign currency risks and minimize maturity mismatches. It also reduces the reliance on bank intermediation diversifying risk in the market. Finally, if bond markets are more efficient at channelling funds from savers to investors then this will lower the cost of capital to the real sector thereby allowing the economy to grow faster.

It is important to compare bank financing and bond issuance as a means to finance infrastructure projects. Bank loans involve direct negotiation between a lender and a borrower with flexible terms and conditions including on rescheduling of repayment. Banks carry out due diligence and credit checks on borrowers and projects and screen safe borrowers from less safe ones. Banks continue to monitor the borrower's business or project to prevent moral hazard problems. Information gathering and monitoring between the borrower and the lender are conducted on a bilateral basis.

Bond issuance is the direct financing via financial markets from the broad base of investors. In order to issue bonds, the issuing firm's financial conditions are scrutinised and rated by specialised agencies and the information gathered in the process is open to the public if necessary. Underwriting bond issues is an important process for the dissemination of the debtor's information to the public as well as for the treatment of risks related to public offers.

Bonds also have the advantage of being transferable financing tools through capital markets. As such they are more flexible to the individual needs of infrastructure projects, in so far as they can offer longer maturity periods and larger amounts of financing needed for construction and maintenance of infrastructure facilities. Bond markets therefore spread large project risks over a large number of holders of securities. Moreover, as bonds (unlike loans) are designed to be traded, investors can transfer the risks to others when they feel the need to do so, even before the projects are completed.

Development of bond markets take time and can be hampered by a number of factors including the attitude of the banks to underwriting bond issues and onerous government regulation (disclosure requirements) may limit the supply of quality corporate issuers. On the demand side, many APEC member economies suffered from a lack of institutional investors such as pension and mutual funds with a ready appetite for long term infrastructure bonds. Inadequate supporting facilities also discouraged the development of an active secondary market for corporate bonds.

Bond markets are also better suited to furthering regional development objectives. They face fewer constraints to cross-border flows than banks such as foreign exchange open position limits, maturity mismatch limits or capital requirements. It is not surprising therefore that multilateral efforts to develop regional bond markets have been pursued such as the ABMI and the ABF.

Innovation in the type of financing instruments available for long term project financing is a distinguishing characteristic of mature bond markets. The impacts of the GFC discussed earlier have spawned innovation. Infrastructure revenue bonds (IRBs) are being increasingly issued by private companies as an alternative to long term bank loans-usually funded through a direct link to the users charges (e.g. toll charges on roads) associated with the particular infrastructure project.

Another development is so-called "covered bonds". These are debt securities backed by cash flows from public sector loans or private sector mortgages and have been used in European financial markets for a long time. Their use is spreading to Asia. They differ from other forms of pooled securities because the underlying obligations remain on the bond issuer's consolidated balance sheet. An investor has recourse to a pool of assets that secures or "covers" the bond if the originator (usually a bank or other financial institution) becomes insolvent. The issuer of a covered bond gains the benefits of pooling its individual (smaller) obligations. The asset pool which backs the covered bonds is segregated from the claims of other creditors. Covered bonds are typically being assigned AAA credit ratings by credit rating agencies thus lowering the total cost of capital for long term project financing. Investors like covered bonds because they represent a large, liquid, and high quality asset class. Banks like them because they are generally low-cost and long-term and backed by low risk collateral and government guarantee.

Australia recently announced that it will amend its Banking Act to permit the issuance of covered bonds by Australian financial institutions with the requisite credit ratings. This should give such Australian ADIs access to cheaper, more stable and longer duration funding in the wholesale capital markets.

The pros and cons of privatisation have been studied in depth by many analysts (OECD, 2006) and despite data and methodology problems, there is overwhelming support for the view that privatisation does significant improve the profitability, real output and efficiency of privatised companies. Approaches in APEC's member economies have been varied and motivated by different objectives: there is no one single right or wrong approach.

Privatisation usually accompanies broader structural reform of the economy and its success crucially depends on the sufficiency of complementary institutions, laws and policies in areas such as competition, financial markets, labour markets, trade liberalisation and foreign investment rules to support the newly privatised assets. Indeed analysis of failed privatisations from Latin America point to three factors - lack of process transparency opened up the door to corruption and opportunistic behaviour, poor contract design linked to a lack of deregulation and inadequate re-regulation and flawed corporate governance institutions raised the cost of capital and hampered necessary restructuring of the privatised business post-sale.

In an environment where most developed APEC member economies (except the US and Japan) are reducing fiscal deficits following the 2009/10 period of fiscal stimulus, full scale privatisations as a policy option to raise much needed infrastructure financing may reappear. Careful handling may be required because privatisations may provoke significant political opposition. While the number of attractive potential targets is significantly less than it was when large scale privatisations kicked off in the early 1990s, plenty of opportunities in roads, communications, financial services and energy remain.

Some potential investors, such as superannuation funds, have expressed a clear preference for brownfield assets because they do not carry construction risk and offer more stable returns that are well aligned with investor's priorities. Consequently, this method of financing involves the sale of public assets and the reinvestment of those proceeds in new infrastructure. In time, the new infrastructure can itself be sold and the proceeds reinvested.

A good recent example of this privatisation policy approach was the sale of a portfolio of five assets in 2010 and 2011 by the Queensland state government in Australia. These included:

- the sale of Queensland Motorways Limited roads portfolio to the Queensland Government's investment arm QIC for US\$3.088 billion;
- the initial public offering of 66 per cent of Queensland Rail for US\$4.6 billion;
- a 99 year lease of the Abbott Point Coal Terminal for US\$1.829 billion;
- a 99 year lease to manage Queensland's forestry plantations to Forestry Plantations Queensland Pty Ltd for US\$613 million; and
- a 99 year lease of the Port of Brisbane to Q Port Holdings for US\$2.1 billion.

In this model, the proceeds of US\$12 billion could be placed in an infrastructure fund to develop greenfield projects which, in turn, could be divested upon reaching maturity. In order for this method to be effective, a forward programme of asset divestments is required that enables potential investors to prepare for upcoming divestments. Two of the benefits are the transferral of risk to the private sector as a result of privatisation as well as the creation of deal flow for traditional infrastructure investors.

PPP AS THE HYBRID FORM

Investment decisions of government are most efficient where they deliver the highest proportion of benefits to costs taking into account possible alternative uses of the funds including giving funds back to the taxpayer through tax cuts. Providing public infrastructure involves an inter-relationship between investment, funding and financing — all of which have quite different impacts on the efficient allocation of resources. Decisions to undertake public infrastructure investment are often less about profitability and more about adding to community welfare and "value for money" and the many spillover benefits of such investment are not fully captured in market pricing.

Funding efficiency relates to how the government decides to make good the shortfall between user charges and the construction and operation costs of the infrastructure including interest and principal repayments. There is a delicate balance between the effect of user charges on demand and the net reduction in costs imposed on taxpayers (after allowing for transactions costs associated with user charges). Financing efficiency is all about trying to minimise the lifetime financing costs of a project. The main financing task is to meet upfront investment costs in a timely manner but the chief efficiency issue is which financing vehicle best

manages project risk. The more efficient financing vehicles are those that assign risk to the partner best placed to manage it thereby reducing the overall cost of the project. Allocative efficiency may be influenced by the chosen financing vehicle to the extent that it imposes greater discipline on investment and funding decisions⁹. It is here that we begin our discussion of PPPs in APEC member economies.

HISTORY OF PPP DEVELOPMENTS

This part will review the occurrence of PPP ideas and its utilization in developed and developing economies over time. It will also consider the trend of international investment whereby huge international capital comes rapidly to take advantages of infrastructure development in developing economies, such as building an economic zone or urban city.

Before looking at the history of PPP it is necessary to differentiate them from full scale privatisation because some may regard PPPs as just a form of privatisation. What sets PPPs apart from privatisation is the focus on partnership, meant here in the wider sense of the term. Though the public and private partners in PPPs may have different objectives-one on service delivery and the other on making a profit-they have to be able to align those objectives in order to be able to realise them together. In other words, the PPP contract specifies in detail the quantity and quality of service required and assumes that if the private partner can deliver an efficient and effective service at an agreed price they will earn a maximum profit. So fulfilling the contract will make both parties happy. Privatisation on the other hand does not involve the public partner making a detailed output specification of the newly privatised entity while permitting the new private owner to go after maximum profit.

Energy was almost universally the first sector to experience PPP projects. PPP in the Asian region commenced in China as early as 1984 with the commissioning in Guangzhou Province of the Foshan City Power Plant, a greenfield project implemented in the Build-Own-Operate (BOO) mode. Two more private power plants were commissioned in China in 1986 (Guangdong, BOT) and 1989 (Shenzen, BOT). Following these first PPPs in China, ASEAN economies also contracted some PPPs. An Indonesian BOO power plant was commenced in 1992 followed soon after by another BOO when Gas Malaysia was incorporated on 16 May 1992 to construct and operate the natural gas distribution system (NGDS) within Peninsular Malaysia. The power generation project of The Kaset Thai Sugar Co Ltd commenced operations as a Build-Operate-Own power generation project in 1993. The sugar company converted waste bagasse into electrical power.

The Philippines was the first to introduce a specific BOT law in the 1990s as it struggled with frequent power shortages that caused serious underinvestment by the public sector in the

⁹ There is an excellent theoretical discussion about the scope for efficient financing to reduce the life-time cost of an infrastructure project and the potential financing vehicles have to improve the investment decision in Forwood, Roper and Sayers (2009) especially Chapter 2.

previous decade or so. It needed to rapidly augment its existing power supplies and more formal legal structures and institutions were required to help speed up the building of additional capacity. The early 1990s were characterised by fiscal surpluses and stable exchange rates in many Asian economies including the Philippines and Thailand and this spurred PPP projects where economies would assume a disproportionate share of the project risks. Private investors were able to get new projects approved quickly with explicit or implicit guarantees without governments worrying about their fiscal exposures to such projects.

After these initial PPP experiences, APEC member economies are now among the world leaders in PPP project development. Chile was a leader in developing PPP projects in infrastructure in Latin America with the first internationally tendered BOT contracts put in place in the early 1990s. The initial areas of interest in Chile were highways/tunnels, seaports and airports. Chile has developed considerable expertise in implementing PPP projects and in a recent assessment of the environment for PPPs in Latin America by the EIU, top scored with 79.3 out of 100 out of the 19 economies studied due to its strong regulatory, institutional and investment conditions (Brazil ranked second and Peru third in the survey).¹⁰

Australia has been developing PPP policies for infrastructure delivery since the first PPP to build the Sydney Harbour Tunnel in 1988. In the period leading up to 2000, the majority of privately funded PPP style infrastructure projects were transport projects primarily roads. Victoria was the first state of Australia to develop a comprehensive PPP policy with a dedicated PPP unit, Partnerships Victoria, generally regarded as a model for this type of institutional approach to PPP. Australia has implemented PPPs in all areas of economic and more recently social infrastructure and has a well-developed national pipeline of PPP projects.

Canada has concluded PPP transactions in various sectors, including roads, bridges, airports, ports, energy, hospitals, waste water, social housing and schools. Korea established a policy framework to facilitate and support private participation in infrastructure provision, and by July 2008 had delivered 153 Build-Transfer-Operate (BTO) and 290 Build-Transfer-Lease (BTL) projects.

Aside from public investment, Indonesia is also encouraging the private sector to participate in infrastructure construction. The government has been working with international organizations in recent years to offer financial incentives for private investors' engagement in PPP (public-private partnership) projects, such as establishing the Indonesia Infrastructure Financing Facilities and Indonesia Infrastructure Guarantee Fund. Meanwhile, the BKPM has

¹⁰ In terms of its financial facilities for funding infrastructure (which includes PPPs), Chile scored 97.2/100 with the next best economy being Brazil with 72.2/100. Mexico also scored 72.2/100 and Peru scored 61.1/100 ranking 5th.

been appointed as the front office to offer PPP, and five priority projects totalling USD 4.4bn have been laid out for 2011.

Other APEC member economies with significant experience in PPPs include the United States, Mexico, Japan, Peru, New Zealand, Viet Nam and Singapore.

According to figures kept by the World Bank's PPI data base, in the period 1990-2010, Latin America and the Caribbean had the most PPP projects (1,483), valued at US\$613 billion, where the leading economies were Brazil (\$287 billion) and Mexico (\$103 billion). East Asia and the Pacific ranked second with 1,440 projects valued at US\$324 billion where the leading economies were China (\$113 billion), Philippines (\$53 billion), Malaysia (\$53 billion) and Indonesia (\$50 billion). The telecoms sector had the most PPP investment at US\$761 billion followed by energy (\$548 billion) and transport (\$276 billion).

A more recent development in PPP use concerns the development of special economic zones, together with urban city development and urban regeneration projects especially in older industrial areas like London's Docklands. And not just PPPs in government sponsored special economic zones (SEZ) or hybrids of them. Over the past 15 years, the number of **privately owned, developed, and operated** economic zones worldwide has grown. In the 1980s, fewer than 25 percent of SEZs worldwide were in private hands. According to a FIAS study (FIAS 2008), 62 per cent of the 2,301 zones in developing and transition economies in 2008 are private sector developed and operated. The key factor behind the rise of private zones is the growing realisation through the success of the PPP model that such facilities can be profitably operated on the part of developers and the burden such SEZs can place on government resources relieved.

APEC member economies that have been slower to adopt PPPs, or are facing other challenges and barriers, can benefit from the experience of more established PPP markets, and possibly adopt 'best practice' approaches that address each economy's needs.

THE POTENTIAL OF PPP TO ADDRESS INFRASTRUCTURE GAPS

A recent commentator on PPPs noted:

"The question we no longer need to ask is whether PPPs are a good or a bad thing. The question we should now be asking is how to improve the model for better performance in the future." (Regan, 2011)

We need to place PPPs in the context of total government procurement because in academic and public discussion concerns raised about PPPs are disproportionate to their importance in the market place. Even in the most mature PPP markets-the UK and Australia-PPPs account for between 10-14 per cent of public sector investment in the UK and for about 10 per cent in Victoria. It needs to be repeated that about 90 per cent of public infrastructure spending is still traditionally procured. Therefore, prima facie, considerable scope exists for PPPs to take a bigger share of government infrastructure procurement but in practice the maximum share

thought attainable by experts in the field is about 25 per cent. That said, an increase in these proportions, especially in the area of large infrastructure projects that are difficult to fit into government's inter-temporal budget limits, would make a significant contribution to closing the infrastructure gap in many APEC member economies.

In the last twenty years or so, there has been an important increase in the use of PPPs driven in the main by pressure on government budgets and increasing community acceptance that the private sector can provide many infrastructure services more efficiently and at higher quality than governments.

The benefits from PPP as a vehicle for delivering infrastructure services are not simply about lower cost financing. Private sector companies involved in PPP develop improved capabilities in construction, operation and project management that governments can leverage to reform public service delivery. Well-designed PPP contracts can also:

- align payment with delivery to put pressure for prompt completion;
- let governments to concentrate on what they can control best-regulation of the relevant market to ensure effective competition; and
- improve maintenance by transferring it to the private partner.

Why PPP arrangements are so effective against many performance measures when compared with traditional procurement comes down to differences in responsibility and accountability. A well structured PPP introduces clear lines of accountability, roles and responsibilities and transparency of outcomes and performance where failure to deliver has consequences usually in the form of lower contractual payments and thus less profit for the private entity. When the government acquires, designs and delivers the infrastructure service, the cost of funding and performance outcomes are not linked to the project's risks and therefore its success or failure. Governments are largely disconnected from market signals to which private entities are exposed and poor performance outcomes can be pushed to one side and ignored because the decision makers are not held directly accountable for their bad decisions.

Risk plays a fundamental role in the success of a PPP. According to the OECD, if the main reason for choosing a PPP arrangement over traditional procurement is improved efficiency and service delivery then the key to understanding the role of risk in PPP is the link between the carrying of risk and the efficiency of the project (OECD, 2008). Economic theory recognises three relevant kinds of efficiency in this context: allocative efficiency (i.e. said to increase where a decision or change in policy creates more winners than losers), productive efficiency (i.e. increases through use of minimum inputs for maximum outputs), and X-efficiency (i.e. preventing the wasteful use of inputs). The initial government decision to provide a certain infrastructure service involves allocative efficiency. The choice of whether to use PPP or traditional procurement to deliver this new service involves considerations about productive and X-efficiency.

Risk therefore drives private sector entities to be productively and X-efficient: they try and manage and influence the factors that may cause actual outcomes to diverge from expected outcomes, e.g. cost escalations, revenue shortfalls, timely completion and accurate budgeted expenditure. Improved productive efficiency may be directly related to the fact that the skill levels in the private sector are better than in the public sector. Grout (1997; 2003; 2005) emphasises information costs and the incentive structure created by the PPP service payment mechanism. A PPP contract stipulating the supply of services from an infrastructure facility where payment is made only when services of a suitable quality are produced, provides a powerful incentive to build the right facility, with the right service delivery process at least cost to specified quality levels. Such incentives are dulled where the construction and delay risk is carried by the public sector.

Apart from risk transfer, the economic literature on PPPs identifies two other features of a PPP that lead to greater productive efficiency than obtained under traditional procurement: the vesting of ownership rights and the benefits of bundling (Blanc-Brude, Goldsmith and Valila, 2006). PPPs provide for the ownership or control rights to land, property or facilities to be vested in the private sector entity to the contract for the term of the concession or lease. This vesting of control rights provides a strong incentive for the private sector entity to undertake related cost-saving investments (for example, in road maintenance technology) that increases productive efficiency. Without these control rights, there would be no investment in this new technology as the private sector entity would be unsure if the investment would pay off.

'Bundling' in PPP contracts is the combining of the infrastructure's construction and operation phases under one contract. Hart observed that it is far easier to write contracts stipulating good quality service provision than to specify good quality building design (Hart, 2003). Thus bundling can change the incentives offered to the private sector entity by encouraging possible larger upfront investment in building design and construction to achieve lower life cycle maintenance costs and hence productive efficiencies. The obligations to maintain and transfer the asset to the state at the end of the lease or concession, and to provide asset-based services over the life of the contract, are additional incentives to minimise whole of life costs.

If risk transfer drives efficiency, then what ensures risk transfer? Competition both at the bidding process stage and after the infrastructure facility is completed ensure the effective transfer of risk. In the bidding process, competition improves the bargaining position of the government and stops opportunistic behaviour on the part of the private bidders and thus delivers better value for money to the government. The presence of too few bidders is a real danger in PPP bidding. Competition after the service is delivered ensures that the private partner delivers the agreed value for money. The mere threat of competition prevents moral hazard and restricts the capacity of the private partner to force the government to renegotiate the terms of the contract.

To support the abovementioned efficiency benefit claims of PPPs over traditional procurement, there is now a wealth of empirical evidence primarily under two headings- construction outcomes and projected value-for-money.

Many multi-country studies clearly demonstrated the "optimum bias" in traditional procurement manifested in significant cost overruns and completion delays:

- Hodgson (1995) noted that for UK road projects, cost and time overruns were common;
- Mackie and Preston (1998) found 21 sources of error and bias in UK transport projects;
- Flyvbjerg, Holm and Buhl (2002) found costs to be underestimated in 90 per cent of 258 large transport infrastructure projects in 20 economies by an average of 39 per cent; and
- in a study of 39 large UK infrastructure projects, Mott MacDonald (2002) found that completion time overran by 17 per cent, while capital expenditure costs exceeded estimates by an average of 47 per cent;

The results for PPP's construction performance were much more positive:

- Eleven of the 50 UK projects examined by Mott MacDonald (2002) were PPPs. Not only did they come in ahead of time on average, but capital expenditure was on average only 1 per cent over budget;
- HM Treasury (2003) studied 61 PPP projects with 89 per cent of projects being delivered on time or early, and all projects within budget;
- The UK National Audit Office (NAO, 2003; 2005) found 76 per cent of PPPs were on time (only 30 per cent for traditional procurement projects) and 78 per cent within budget (only 27 per cent for traditional procurement projects); and
- A European Investment Bank study (Thomson, 2005) found 60 per cent of the 50 traditionally public infrastructure projects were late by more than one year compared with only 3 out of the 10 PPP projects financed by the Bank.

Further studies have delved deeper into value for money and found significant quantifiable cost savings of between 13 and 20 per cent for PPP infrastructure projects using the so-called Public Sector Comparator (PSC) in the UK and Australia (Arthur Andersen, 2000, NAO, 2001, Fitzgerald, 2004). According to the UK Treasury (HM Treasury, 2003a), a PSC is "a hypothetical risk-adjusted costing, by the public sector as a supplier, to an output specification produced as part of a procurement exercise."

In other words, the PSC is an exercise in producing a benchmark in-house implementation cost for a traditionally procured project to compare alternative PPP project costs against.¹¹ Grimsey and Lewis (2005) discuss how the PSC is used extensively by many economies to assess value for money in PPP project proposals. The PSC is by no means as complex as full cost benefit analysis of all available alternative financing methods but is more popular because it involves less subjectivity and creates less ambiguity. But using the PSC prior to the bidding process is the next most complex method and is used by Japan. The third most complex assessment method is using the PSC after the bidding process. Australia uses this method. The main components of a PSC in Australia are the raw cost, transferable risk (which constitutes on average approximately 8% of the project value in Australia), non-transferable risk and competitive neutrality (to cancel out, among other things, the tax benefits of state companies that private companies do not have). Finally, the last method and least complex does not seek to make comparisons between public and private alternatives. It is merely a competitive bidding process and is used by the United States.

PPPs are not without problems. They are too complex, and costly, for many small projects. The exercise of putting together a PPP bid including compiling a PSC is a very costly and time-consuming exercise which can take several months to construct if the proposed PPP is detailed and complex. These costs reduce the net benefit and may deter many potential private entities and financial institutions from bidding especially for relatively small projects.

The capacity of the public sector agency to implement and manage complex PPPs may be insufficient. It may also be difficult to draft the detailed specification of the outputs required in other projects. New hybrid PPPs, with different degrees of partnership, have evolved to try and deal with these problems. These new hybrid infrastructure service delivery models retain clear lines of responsibility and try to reduce procurement costs and generate to accommodate different risk preferences and infrastructure service needs.

Types of infrastructure in which PPP investment is commonly found

PPPs have been used in many APEC member economies to successfully deliver a mix of economic and social infrastructure investments. As noted in an earlier section, the first PPPs in many APEC member economies were in the energy sector reflecting the increasing demand for power. Power generation projects are still important PPP projects in many APEC member economies. From there, PPP expanded into urban transport systems including mass transit,

¹¹ The European Commission requires value for money to be a primary objective in PPP design. The Commission associates VFM with reduced life-cycle costs, better allocation of risk, faster implementation, improved service quality, and generation of additional revenue (EC, 2003). The Fitzgerald report on PPPs in Victoria, Australia, states that the government follows the guideline that VFM can be delivered through risk transfer, innovation, greater asset utilization and integrated whole-of-life management (P. Fitzgerald, 2004:17).

water supply, treatment and wastewater treatment. PPP also has been used to establish communications networks.

In the case of Chile, PPPs have delivered many road projects, sea ports, airports, reservoirs, prisons and public hospitals. Australian PPPs have been used for delivering projects such as major toll roads (the Sydney Harbour Tunnel and the Melbourne CityLink), hospitals (the Hawkesbury Hospital, Mildura Base Hospital and Joondalup Health Campus), prisons (Borallon Correctional Centre, Queensland), the Junee Correctional Centre, NSW), schools in NSW and Queensland, utilities (Macarthur Water Treatment Plant, NSW, the South-West Queensland Gas Pipeline and the Challicum Hills Wind Farm, Victoria) and sporting facilities (Telstra Stadium, NSW and Docklands Stadium, Victoria). The Philippines presently have live PPP projects in education, health, highway development and airport development.

2. PPP CONSIDERATIONS

As discussed earlier, the impact of the GFC of the past three years has focused much attention on the importance of infrastructure investment longer term as a stimulus to economic growth. However, given limits on public resources and fiscal space, APEC member economies are more and more looking to the private sector and PPPs in particular to bridge the infrastructure funding gap. The focus on the fiscal leveraging of projects is an undeniable rationale for this approach but member economies recognise that there are other reasons why they should seek the help of the private sector to deliver infrastructure.

In the previous section, we highlighted some of the key advantages of PPPs over traditional procurement to meet growing infrastructure needs of both developed and developing member economies. One such advantage was how appropriate risk transfer from the public sector to the private sector could deliver long-term value-for-money at all stages of the project from design/ construction to operations/ maintenance. Another advantage was the fact that well-designed PPP contracts provided the right incentives for the private sector to deliver projects within budget and on time. PPPs also set present and future costs of new infrastructure projects over time and thus create greater budget certainty.

All of these aforementioned advantages of PPPs have a financial or budgetary impact. Increasingly member economies are recognising that the advantages of PPPs go far beyond bringing additional financial resources. They know that PPPs will lead to more private sector technology and innovation generating greater operational efficiencies which in the end mean better public services. PPPs will lead to significant up-skilling of the local workforce. PPPs will also create a more diversified economy through greater competition as well as giving a boost to those services linked to infrastructure development such as construction, equipment, support services etc. PPPs generate many spin offs including sub-contracting opportunities for local firms in a wide range of service areas such as electrical works, facilities management,

security services, cleaning services, maintenance services etc. Using PPPs will gradually expose state owned enterprises and government to increasing levels of private sector participation (especially through FDI).

A 2010 survey by KPMG of 392 senior public sector officials involved in infrastructure policy and procurement from 50 economies worldwide revealed that 65 per cent believe that the private sector should be part of the solution for delivering infrastructure more effectively (KPMG, 2010).

With all this overwhelming evidence of the benefits of PPPs, isn't the case for considering PPPs as the first choice for infrastructure investment compelling?

Canada's PPP policies come close to this level of conviction. At the federal level, leadership is provided through the US\$1.2 billion P3 Canada Fund, which is a merit-based program created specifically to improve the delivery of public infrastructure, value, timeliness and accountability by increasing the effective use of P3. It is the first infrastructure funding program, anywhere in Canada, which directly targets P3 projects. PPP Canada's operations focus on building P3 procurement knowledge and capacity amongst federal departments, and leveraging greater value for money from federal investments in provincial, territorial, municipal and First Nations infrastructure with the P3 Canada Fund. PPP Canada was created to deliver more P3s by leveraging incentives, demonstrating success, and providing expertise; and to deliver better P3s by promoting P3 best-practice, and capacity-building.

At the provincial level in Canada, there is also strong political level commitment to high levels of private sector investment in infrastructure through PPPs which contribute up to 25 per cent of infrastructure investment in provinces like British Columbia and Alberta. Canada like many other member economies has seen a dramatic shift in the share of infrastructure assets under the jurisdiction of its various levels of government. In 1961, federal, provincial/territorial and municipal government's respective shares stood at 39 per cent, 36 per cent and 25 per cent, respectively. By 2009, these shares were about 18 per cent, 36 per cent and 49 per cent, respectively. This reflects a major shift in infrastructure responsibility to municipal governments. At the same time, the present share of the taxes with federal, provincial/ territorial and municipal governments are 50 per cent, 42 per cent and 8 per cent, respectively. This cost/revenue mismatch is a situation mirrored across APEC member economies and may explain to some extent why public spending on infrastructure as a proportion of GDP has been steadily declining in many member economies over the past few decades. It also highlights the need for a coordinated nationally led approach like the one Canada has set up through P3 Canada.

Interestingly, British Columbia, which spends about \$C3 billion on capital investments is so committed to the development and delivery of PPPs that its capital procurement policy formally requires that a PPP must be considered the base procurement option where the provincial contribution to the capital exceeds \$C50 million. This applies to all ministries,

provincial crown agencies and municipal governments. BC began its PPP program in 2002 and with over 30 PPP projects completed worth over \$C10 billion, all have been completed on time or early and all within budget (Hansen, 2009).

In neighbouring Alberta, enthusiasm for PPP projects that makes sense from the taxpayers' perspective is based on an excellent track record of value for money, efficiency, timeliness and long-term management. Attractive features of PPPs in Alberta's view have been:

- fixed cost and delivery date contracts with protection from construction cost escalations and weather-related delays which has worked especially well for highways projects;
- guarantees that ongoing maintenance will be performed as needed and a 30-year warranty-much longer than under traditional procurement; and
- a recent PPP delivered contract to design, build, finance and maintain 18 new schools which saved taxpayers \$C118 million due to design efficiencies and single cost and supply chain management system, created 12,000 additional school spaces two years earlier than would have been possible through traditional construction methods.

One claim made by Canada since enacting its new P3 Canada infrastructure policy is that it has increased the visibility of PPPs as a procurement solution for governments at lower levels. Many of the project applicants under Round One of the P3 Canada Fund represented undeveloped P3 markets which approached PPP Canada early on in their infrastructure procurement planning process to get information on PPPs as a procurement solution and access support and expertise. The lesson perhaps of the Canadian experience is that for PPPs to become the first choice more often in member economies requires a national infrastructure strategic plan. Such a plan would be driven by the central government with all key stakeholders involved where one of the key objectives is to share information, support and expertise on PPPs as a procurement option for governments considering infrastructure investments.

Encouraging PPPs as a procurement option is not a handover of many core government responsibilities to the private sector where governments can sit back and watch from the sidelines. In fact, the sheer complexity of PPP contracts often means the government takes on a more hands-on role in planning, policy formulation and ongoing regulation of the activity/sector. Building an enabling environment for PPPs usually means governments need to implement a series of economic reforms. Officials from lower levels of government need to be educated fully in what these responsibilities are and how to handle reform. Often there is a high level of community interest in the delivery and cost of PPP projects together with a number of governance issues precisely because of private sector involvement-that requires careful monitoring.

The major responsibilities of government in the policy area of PPPs are several but one of the most important is the need to formulate a clear PPP policy framework. Normally this framework would have two parts-one common to all PPPs setting out the government's key policy objectives, core principles and general guidelines and a second part setting out sectoral issues. Included in the framework would be clearly stated government's position on private sector friendly policies, good governance principles in decision making such as transparency, accountability and stakeholder consultation, market and sector structure/competition, types of PPPs, types of government support available (grants, subsidies, loans, guarantees, land appropriation, compensation for termination etc), unsolicited proposals and authority of local government.

Another key responsibility of governments is to ensure its regulatory and legislative frameworks are up-to-date, complete and integrated across sectors and ready to handle the reality of PPP contracts. Far too often there are deficiencies in the market and sector structure including a lack of relevant market regulation which can lead to monopoly and sector inefficiencies. These can be major deterrents to PPPs in infrastructure. A good example would be the transport industry where barriers are common in the form of public monopolies and distortions in the pricing of competing transport modes. Governments need to address these barriers if they wish to encourage PPPs. Similarly, governments need to draw up clear rules and guidelines setting out the administrative process by which PPPs are considered and implemented-this is to ensure consistent, streamlined administration by the bureaucracy which will reduce uncertainties at different stages of project development and approval.

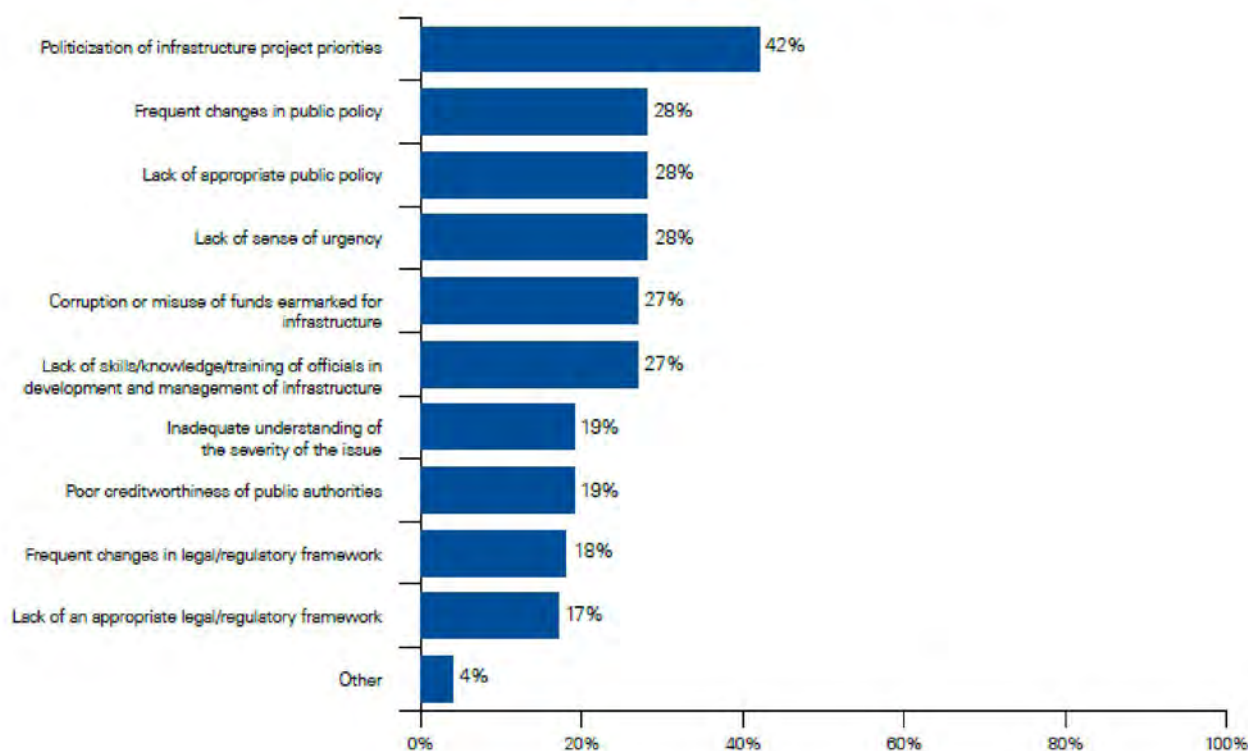
Other issues that governments will need to address include the social and political concerns sometimes raised by private sector involvement in the provision of infrastructure services, many of which such as power supply, water supply and roads perceived as "public goods". The social and political acceptability of PPP projects may be a key issue in many developing economies. The perception of these services as public goods has made the tasks of government more crucial as the issues of equity and efficiencies have to be dealt simultaneously in a PPP policy framework. Price setting or any price revision later on can be a sensitive issue for many PPP projects. Government (or the regulator) must not allow the private sector to earn excessive profits meaning great care is needed to set the contracted price at a level that allows cost recovery plus a fair return on their investment. Where a government price subsidy is given for broader social or political reasons the community needs to be properly informed else there would likely develop wrong perceptions about the actions of the private sector.

The final issue from the government's perspective is that the public sector needs to understand better what the concept of "partnership" with the private sector entails. This requires skills enhancement through capacity building in the areas of project identification and evaluation, financial and risk analysis, contract documentation preparation, procurement and contract negotiation and management.

The Economist Intelligence Unit (EIU), on behalf of KPMG International, conducted a survey during June and July 2009 of 455 senior executives from 69 economies directly involved in the development, delivery, operation/maintenance, provision of financing, or providing advice in the transportation, energy, social services, and water sectors (KPMG, 2009b). One of their main aims was to find out from these private sector infrastructure providers what were the biggest obstacles to making relevant infrastructure investments. The figure below taken from the study report lists their most frequent responses.

Infrastructure provider views regarding the greatest public sector impediments to increased infrastructure investment

(Multiple responses permitted, may not add to 100 percent)



Source: *Frontline Views from Private Sector Infrastructure Providers*, KPMG International in cooperation with the Economist Intelligence Unit, 2009.

The most frequently cited obstacle was governmental effectiveness with 69 per cent concerned about its impact. Breaking this down further, politicisation of infrastructure project priorities was the most frequently referred to public sector impediment to more investment in infrastructure by 42 per cent of respondents and the most often stated way to improve governmental effectiveness was by de-politicising such priorities (45 per cent). The biggest contributor to government ineffectiveness in the survey was excessive bureaucracy, mentioned by 51 per cent of respondents.

Lack of a sense of urgency, frequent changes in public policy, and even a lack of an appropriate public policy were all named by 28 per cent of survey respondents as leading public sector impediments to greater infrastructure investment. Short-term planning horizons and a lack of attention to long-term maintenance were the second and fourth most commonly listed impediments to governmental effectiveness (35 and 31 per cent, respectively).

Corruption in the selection of infrastructure providers was seen as the third biggest impediment to government effectiveness in this field (31 per cent), and more than one in four (27 per cent) saw misuse of funds earmarked for infrastructure projects as an important impediment to greater infrastructure investment. To combat this, 44 per cent of respondents wanted to see increased transparency in planning and project selection and in infrastructure spending (35 per cent). Corruption was seen by respondents as much more of a problem in developing economies.

Two final impediments to private sector infrastructure investment came out of the EIU survey. About half of respondents singled out a lack of relevant people and skills for infrastructure provision. The recommended fixes for this problem were a steady commitment to more infrastructure spending, more investment in training and education and better incentives for people with high in-demand skills. None of these are "quick fixes" through one-time spending initiatives. Finally popular and regulatory pressures in the environmental area were raised by 47 per cent of respondents as a stumbling block to infrastructure investment.

Another KPMG survey (KPMG, 2010b) looked in depth at the Australian PPP procurement process and asked participants in the infrastructure provision process what they considered as the main barriers to competition and efficiency. Australia is generally regarded as one of the more mature markets and hence could provide valuable lessons for APEC's developing member economies.

Participants expressed a high degree of confidence in the Australian PPP process with procurement being efficient and on time. One frequently mentioned criticism was inconsistent application of best practices across state and local government jurisdictions and across all projects within a jurisdiction. This is likely to be a problem replicated across many APEC member economies.¹²

Participants also criticised bidding costs in the Australian PPP process. Typically for projects with a capital value of US\$250-300 million, US\$2.5 million was at risk, rising to US\$5-6 million for a US\$1 billion hospital and US\$30 million or more for a large US\$2 billion+ economic infrastructure project. Consequently, Participants wanted greater efficiency where

¹² Work is currently under way in the APEC Finance Ministers Process for greater commonality in markets across APEC in the implementation of PPP procurement. The aim is for a more harmonized approach with an emphasis on greater commonality in PPP bidding procedures and concession agreements.

possible, and to improve process certainty to avoid unexpected additional bid costs that can be large in absolute terms.

Most Participants (both private and public sector) acknowledged that the Australian PPP market is competitive and delivers strong financial value for money. However there are some factors that are seen as barriers to competition. One factor mentioned by all Participants was a largely unknown pipeline of projects that is sporadic in nature. The creation of Infrastructure Australia and the publishing of *National Infrastructure Priorities* in May 2009 have improved transparency of the pipeline. Its website contains a reliable, nationally co-ordinated central repository of information detailing projects completed to date and the status of projects currently in the market, collated from the Federal Government, States and Territories. However, information provided on the **future pipeline** is very limited.

The lack of a national pipeline of projects is a common criticism of private sector participants in many APEC member economies and an area with much room for improvement. This compromises the public prominence and knowledge of member economy PPP markets creating uncertainty as to whether entry into a market would provide an adequate return on the necessary investment to set up a bid team with the required skill set. For existing players in PPP markets they would be unwilling to expand teams with specialist skills and knowledge for fear of not finding sufficient future opportunities to repay such costs. High bid costs added to the lack of a national pipeline of projects accentuate the barrier to project participation. Some economies have tried to counter this problem by committing to the PPP procurement model as the default for major projects that meet certain general criteria.

Some important issues in relation to inefficiency in the Australian procurement process impacting both the level of transaction costs to Government and the bid costs incurred by market participants were raised by the Participants. These included:

- inefficient resourcing associated with the stop/start nature of the Australian PPP market (due to a number of factors including the uncertainty and lack of a clear project pipeline), delayed communication of decisions and lengthy procurement processes;
- excessive information and documentation requirements;
- inconsistencies in and reduced quality of tender processes and documentation; and
- inefficient decision making processes and long delays in communicating decisions to market.

All of these issues raised by practitioners in the Australian PPP market are frequently cited by practitioners in other APEC member economy PPP markets. They are issues that create uncertainty and therefore increase risk and reduce potential private sector participation in PPP projects. They need careful consideration by APEC member economies if they are to tackle persistent infrastructure deficits.

An earlier section on private financing of infrastructure investment broadly discussed the types of investments and the financing vehicles e.g. capital markets (bank loans), equity markets (IPOs, acquisitions including FDI), bond markets (infrastructure and general government bonds), property markets and PPPs. This section discusses why investors like infrastructure assets and which investors are a good fit for PPP investment in infrastructure. Moreover in light of the growing infrastructure deficit the discussion includes what potential exists to increase infrastructure investment from different sources. This would supplement the previous generic discussion about the most frequently cited barriers to infrastructure investment.

There are many favourable investment characteristics of infrastructure assets that appeal to the investment industry namely:

- stable and predictable cash flows;
- long term income streams;
- often inflation-linked (helping with liability-matching);
- tax-effectiveness (in some economies);
- returns less affected by fluctuations in business, interest rates, stock markets;
- relatively low default rates;
- good portfolio diversification potential; and
- good appeal to socially responsible investors (providing public goods essential to society)

The main source of private finance for infrastructure, particularly in APEC's developing member economies with less sophisticated stock and bond markets, are the banks. These could be either domestic or foreign banks. These financial institutions invest in a number of ways - through providing project finance to infrastructure projects in the form of loans or bonds purchased from the public sector and private companies involved in PPPs. Multilateral and bilateral development banks are also significant sources of loans to developing economies for infrastructure investment. As we have discussed previously, bond market development in APEC's developing member economies is continuing but there is a long way to go before they reach the level of product and service maturity of markets in the US, Japan and Australia.

The ever widening infrastructure funding deficit has created a profusion of new financial products in both developed and emerging markets to successfully raise capital through an increasing number of channels. Investor demand for infrastructure assets seems to have returned following the GFC though some markets are more attractive to certain types of infrastructure investor than others.

In understanding global trends in private infrastructure investment it is necessary to make certain distinctions (OECD, 2009). The primary market has to do with financing the start-up phase of an infrastructure project e.g. design, construction and delivery of the facility. It is usually higher risk and requires higher expected returns with a typical J curve profile of cash flows. Investors consider the growth potential of the project. Investors may seek either equity (through listed or unlisted infrastructure companies, private-equity type funds) or debt (buying infrastructure bonds issued by companies). On the other hand the secondary market relates to the operational phase of the project e.g. a toll way and here investors may seek equity in the entity that owns the shares in the SPV used to deliver the asset. Investors are mainly interested in income from high stable dividends. The motivations of investors are therefore quite different in these two distinct markets.

Specialist private-equity type funds (which include buy-out or venture capital funds) have grown strongly over the past decade or so. Most are Limited Partnerships (LP) managed by a General Partner that are often part of a bigger financial group (e.g. Macquarie Bank, Morgan Stanley etc). Investors in such funds are LPs and take a passive role. Infrastructure funds may be listed or unlisted. Some may be single sector (e.g. airport, transport etc) or multi-sector. Some may be solely domestic for investor preference reasons while others have a global or regional emphasis.

Some data on the size of the listed and unlisted infrastructure markets is available. There are well-established stock market indices for the listed infrastructure market and S&P, the index provider, estimates the market capitalization of global listed infrastructure companies at about US\$ 2.1 trillion in 2007. Data on the size of the unlisted infrastructure market is sporadic. In 2006, the credit rating agency S&P reported that an estimated US\$100-150 billion of fund money has been raised globally and is waiting to be placed in suitable assets in the infrastructure sector. However, recent reports suggest that the unlisted infrastructure funds market has grown substantially in the last five years from a niche sector into a major element of the alternative assets industry.

So who are the main investors in infrastructure private equity funds? Prequin's Infrastructure Online database (<http://www.preqin.com/>) currently tracks over 820 active investors in the infrastructure asset class, of which the most active are pension plans, with public and private schemes representing 23 per cent and 15 per cent of investors respectively, followed by superannuation schemes at 8 per cent. Banks, insurance companies and asset managers each represent 7 per cent of active investors. Geographically, investors in the US, the UK and Australia dominate the sector, with 50 per cent of all active investors based in these three economies. US-based investors account for the highest proportion, representing 27 per cent of all investors, followed by the UK and Australia with 13 per cent and 10 per cent of investors based there respectively.

A topical subject for discussion in many economies, especially after the GFC, is the potential for harnessing the funds managed by a range of institutional investors including superannuation funds, pension funds and insurance companies for infrastructure investment.

In Australia in 2010, Infrastructure Partnerships Australia (IPA) published a report making a number of recommended structural reforms to the superannuation sector and the national infrastructure marketplace that will allow Australia to create a stable link to better harness superannuation for major projects. IPA estimated that Australia's superannuation funds collectively hold between US\$40 and US\$65 billion in infrastructure assets. Moreover, some Australian super funds had invested directly in the equity funding of a number of recent large projects including the Victorian Desalination Plant (Unisuper provided 26 per cent of the total US\$646 million equity) and Peninsula Link (Australian superannuation funds contributed in aggregate two thirds of the US\$137 million equity). But IPA noted that infrastructure represents an average investment of just 6 per cent of available superannuation funds, compared with investments in domestic and international shares representing 29 per cent and 23 per cent respectively of their available funds.

In July 2011, the expert advisory body to Infrastructure Australia, the Infrastructure Finance Working Group issued an issues paper which aimed to examine various models of infrastructure finance that are in use throughout Australia and internationally, and to establish the significance of the purported impediments to greater private sector infrastructure investment including through super funds. It is expected that the IFWG will report back to Infrastructure Australia with some recommended reform options.

Australia is not alone in the reluctance of superannuation funds to invest in infrastructure projects. In other member economies such as the US and Canada, attention has focussed on domestic pension funds as a provider of funds for infrastructure projects. Such funds adopt a traditionally cautious approach to direct investment strategies, so it is not surprising that pension funds have not embraced infrastructure assets wholeheartedly. The equity investment by the Dallas Police and Fire Pension System in the Texas LBJ Freeway project (it invested 10 per cent of the US\$700 million equity in this project) was claimed to be the first investment by a pension fund directly in infrastructure development in the US.

International pension funds have a long history of investment in infrastructure. Several large Canadian funds have developed active market positions through their investment in listed funds and more recently, direct investments. Canada's Ontario Teachers Pension Fund and the Canadian Pension Plan have signalled their desire to expand their direct infrastructure investment, particularly in Australia. Several US based funds have invested significantly in power assets both in their domestic market and internationally

An earlier discussion mentioned certain barriers to competition and private sector participation in infrastructure investment projects especially in the PPP process. There is scope for barriers to PPP to investment in infrastructure to exist at a higher level-reflecting national security, public health and safety concerns as well as political issues.

It is highly likely that all APEC member economies have national plans or strategies for protecting critical infrastructure. These strategies generally define critical infrastructure” as physical or intangible assets whose destruction or disruption would seriously undermine public safety, social order and the fulfilment of key government responsibilities. Such damage would generally be catastrophic and far-reaching. Sources of critical infrastructure risk could be natural (e.g. earthquakes or floods) or man-made (e.g. terrorism, sabotage). OECD took a study of critical infrastructure strategies in OECD member economies in 2008 (OECD, 2008b). Critical infrastructure commonly included public utilities, transport and communications networks, health care, financial services and defence. Many of these have private sector ownership and operators, including by foreign investors.

The OECD found that their members generally adopted a risk management approach to critical infrastructure protection. Through this focus they could identify key security assets, assess risks and establish strategies and priorities for mitigating these risks, mainly through measures to be taken in the following areas: prevention, preparedness, response and recovery. National strategic plans among other things sought to improve coordination among relevant agencies and with private sector operators of critical infrastructure facilities in order to manage risks associated with critical infrastructure.

The focus of the OECD study was the extent to which its members assigned roles to investment policies (including the screening of FDI) in critical infrastructure protection. It reported: *"Many countries perceive the value added by investment policy measures, relative to other policies (e.g. defence, law enforcement, sectoral), as negligible and accordingly assign little or no role to investment policy. Others note that, while their critical infrastructure protection policy adopts a broad approach to risk, investment policy is used to address only a narrow range of these risks-those related to national security-and only as a measure of last resort, i.e. only if other, less restrictive and non-discriminatory, measures cannot adequately mitigate the identified risks."* (OECD, 2008b, p2)

APEC member economy practice would likely also vary in this area of investment policy and many would hold contingent powers that could be exercised for non-economic reasons that could affect private investors’ infrastructure investments.

IV. FACTORS CONTRIBUTING THE SUCCESS OF PPP IN INFRASTRUCTURE DEVELOPMENT

1. PPP FRAMEWORK

In many economies, there are specific laws and regulations to regulate general forms authorizing private sector to enter concession contract with government authorities in infrastructure development. By contrast, such legal framework does not exist in a number of economies such as common law economies (as is the case of Australia and the United Kingdom) where government authorities have general powers to enter into contracts without the need for any specific legislation. Consequently, those economies do not have a need for a PPP law or PPP legal framework as such.

This part shall provide examination of common models and the importance of legal framework for PPP arrangements. The examination focuses on the diversity of PPP framework models and indicates the essential for having an effective legislative environment to promote private investment in infrastructure.

The framework for PPP arrangements varies from state to state due to their legal, administrative, cultural and social affairs. Many economies issue generic PPP laws to promote PPP arrangement and set for private participation in infrastructure, whereas in other economies, PPP schemes are regulated by sector or specific PPP laws, government policy and additional arrangements such as the establishment of PPP units or other governing bodies providing assistance to public and private negotiations (such assistance is principled consistently with government efficiency, stability and consistency in facilitating the procurement and delivery of PPP) [Valentine 2008].

The knowledge of PPP is continuously developed. Thus far, there is no single framework model which is treated as the most advance and appropriate for PPP arrangement; but, there are 3 typical PPP models coexisted in both developed and developing economies:

GENERIC PPP LAWS

In promotion of PPP, a number of states such as Japan, Korea, South Africa Ireland, Russia, the Philippines, Thailand, Viet Nam and Eastern Europe economies has introduced generic PPP laws such as Private participation in infrastructure (PPI), Private Finance Initiative (PFI) or the BOT Law which is treated as “concession laws” to regulate investment in under the form of PPP contracts [DHV 2008].

Most of the legal systems of economies mentioned above have the origin from the continental legal system (civil law). As investigated by DHV, due to constitutional and other legal principles that limited private sector commitment, those economies have to introduce special

laws to enable PPP arrangements. This is because in civil law economies, governments do not have “freedom of contract” which would allow them to negotiate contracts freely with private sector [Harada].

Furthermore, the “concessions laws” or general laws that initiating PPI or PFI are additionally necessary for reviewing the existing legislation so as to identify possible restrictions to the implementation of privately financed projects in a predictable manner to promote investment in infrastructure [Harada].

This can be seen in East Asia after the financial crisis in the 1980s when Infrastructure development in the region significantly declined and ongoing projects were experienced of financial hardships requiring legal changes and initiatives. For this reason, Asian economies, including Japan, Korea and the Philippines had reformed their legislation and introduced PPI laws for infrastructure development by actively promoting PPI and set up institutional frameworks for it, especially for the promotion of build-operate-transfer (BOT) projects [Harada].

The BOT law issued by the Government of Gujarat, which is based on international customary international laws and domestic best practices of PPP arrangement, is recognized as another example that provides legislative mechanism for private sector participation in financing, construction, operation and maintenance of infrastructure projects in the State.¹³

In fact, general PPP law model have become dominant in civil law economies but not in common law states because the legal system in those states do not limit private involvement in infrastructure or relevant laws and regulations already provide the necessary framework for PPP arrangements. However, such general law model also exists in Anglo-American law states (common law state) as the case of the Philippines [Harada]. This is because public service supply in constitutional law states is usually addressed in a general methodology and existing sector or specific regulations, which further detail mechanism of infrastructure building and management, may sometimes undermine the introduction of PPI initiatives. Therefore, such PPP law can solve this issue [Harada].

¹³ Infrastructure Development Board of the Gujarat Government (GIDB), public private partnership – legal framework, available at http://www.gidb.org/cms.aspx?content_id=134 12/8/2011.

SPECIFIC LAW FOR EACH INDIVIDUAL PROJECT

The second approach for PPP framework is based on a specific law for each individual project and the Western Harbour Crossing Ordinance to initiate the Western Tunnel BOT project in Hong Kong, China could typically illustrates the model [DHV 2008].

This model had also become popular in other economies like the United States of America in the late 1980s and the 1990s. Several states in the US had introduced "single project" legislation authorizing the private sector investing in a limited number of pilot infrastructure projects such as the Dulles Greenway road which is financed, built and operated under the form of BOT contract in accordance with the Virginia Highway Corporation Act enacted in 1988. Another example is the California's Assembly Bill 680, enacted by the state legislature in 1989, which provides authority for the California Department of Transportation to enter BOT agreements with 4 private investors undertaking toll transportation projects. Similar legislations were also introduced in Washington, Arizona and Minnesota, and there were the 91 Express Lanes were in operation or under construction under public-private partnerships model [LAM 2006].

SECTOR LAWS

The third approach of public private partnership is based on sector laws. PPP framework of Malaysia is a good illustration for this model. Accordingly, there are no general or project specific PPP laws in the economy. Alternatively, limited scope sector laws such as the Federal Roads (Private Management) Act, 1984 have been introduced to promote PPP arrangements. This Act authorizes investors to undertake private road projects as operators and apply collection of tolls. However, it does not provide a comprehensive legal and regulatory framework for PPPs as such existed in economies following the first two approaches [DHV 2008].

GOVERNMENT POLICY

Another typical and traditional model, which seems to be close to the "sector laws" approach, is based on government policy. This model has become dominant in common economies where there is no existence of a general laws or legal framework for PPP as such mentioned above. PPP contracts are regulated by government policy. The Partnerships Victoria Policy and guidance material could illustrate this model. According to Richard Foster, Executive Manager, Partnerships Victoria Commercial Division, Department of Treasury and Finance, under common law system (as is the case in the rest of Australia and in the United Kingdom), government authorities (Ministers) have power to enter into contracts for matters within their portfolio responsibility without the need for any specific legislation. Similarly, most government authorities have general powers to enter into contracts. Consequently they do not have a need for a PPP law or PPP legal framework as such. The PPP projects are regulated by government policy, which is set out in the Partnerships Victoria Policy and guidance material.

For some projects (both PPP and traditionally procured projects), the Project Development and Construction Management Act 1994 is used to ensure appropriate Ministerial control and accountability. However that Act does not specifically refer to PPPs.

For economies following this model, there is a significant demand to establish governing units or agencies to promote public-private programs [LAM 2006]. This can be seen in the Partnership UK which plays a key role as a project development agency and works closely with both government authorities and private sector to provide essential support in implementation of PPP programs.¹⁴

The PPP Unit has also become popular in many other states of Australia where the government policy play a key role in PPP arrangements. In Victoria, Partnerships Victoria Unit established directly under the Department of Treasury and Finance to assist agencies with Privately Financed Project proposals and provide government advice to the private sector by drawing on capability from across the public sector in implementation of the Partnerships Victoria policy. In South Australia a similar structure called a dedicated Project Analysis Branch established within the Treasury to operate as a consultative body to agencies seeking to engage with the private sector in infrastructure development and the delivery of public services to the community [LAM 2006].

COMBINED APPROACHES

In fact, many economies have introduced framework in combined approaches to mobilize infrastructure investment under public-private partnership. For instance, in Virginia, the Public-Private Transportation Act 1995 (PPTA) offers government authorities power and the greatest possible flexibility in contracting with private investors to construct, improve, maintain and operate transportation facilities. The PPTA is primarily targeted for infrastructure projects encouragement which may lead to establishment of infrastructure facilities in a timelier and less costly technique. At the same time, the PPTA Act does not narrow the scope of transportation projects under the public-private partnership model, including the BOT contract. Moreover, those regulations continuously regulate private participation to selected projects or require specific legislation for the development of projects using tolls or other forms of direct user charges [LAM 2006].

Similarly, in Victoria (Australia), PPP projects are regulated by government policy; for some projects (both PPP and traditionally procured projects), the Project Development and Construction Management Act 1994 is used to ensure appropriate ministerial control and accountability. However that Act does not specifically refer to PPPs. Project specific legislation in Victoria is utilized for several projects where there is a need for special legal powers. For example, in toll road projects, legislation is needed to enable the charging and

¹⁴ Partnership UK 2007 Annual Report.

collection of tolls. The project specific legislation for East Link toll road can be acted as good example.¹⁵

In the case of Armenia, there is no general law for PPP; legal foundations for PPP are provided by a full range of legislations such as foreign investment law, privatization law, procurement law, tax law, state budget law and sector law in areas of energy and water... The set of regulations mentioned above available judicial and administrative remedies has been recognized to be sufficient in implementation of PPP projects. However, in term of trade review, Armenia has to make an important choice that is whether to continue its PPPs using general-purpose legislation or pass a special PPP law following the practice of civil law economies such as France, Italy, Korea, Portugal, Brazil, Greece, Russia, Poland etc [Polishchuk 2008].

It is argued that irrespective of chosen approach, economies need to amend laws governing specific infrastructure sectors to promote projects under the form of PPP. This is essential due to PPP provides mechanism for private investors to get involved in a service supply previously provided by public sector. Thus, at a minimum, sector laws must be opened to offer opportunities for private sector in provision of public infrastructure and related ancillary services through public-private partnerships, including the levying of a user fees. Most economies are in favourable for adapting their existing sector laws by inserting provisions to cover PPP scenarios even a generic PPP law coexisted; and South Africa can be a good illustration [DHV 2008].

It can be argued that the choice of PPP approach does not seem to affect economies' success in calling for investment under the form of PPP. However, experience in selected economies has showed that PPP schemes are substantially depended on an effective legal framework that promotes concession contracts. In the context of foreign direct investment mobilization, the Asia Development Bank has delivered an assessment regarding foreign investor interest in PPPs in Hong Kong, China as "high", the Philippines ranked of "medium to high" and Thailand levelled of "medium". By contrast, investor interest in Malaysia has been rated as "low" due to reasons including the absence of a clear legal framework. The assessment concludes that investor's choices are decided by several factors such as the stability and transparency of the legal system of host economies, thus ensuring investor's favourable perceptions of the legal system has become significant, particularly in the PPP promotion context [DHV 2008].

The first reason for advantage of PPP legislations is because this legal instrument shall embody political commitments or statement from the government to push forward with PPP

¹⁵ Partnerships Victoria Policy, available at www.partnerships.vic.gov.au

regimes. This could be recognized as an appropriate way for ensuring stability, predictability and significant guarantee for investors and enterprise communities in infrastructure investment [Harada]. It is supported that an appropriate policy is a pre-requisite for attracting and developing PPP arrangements. However, having only a PPP policy is not enough because policy implementation depends on an effective legal framework and policy goals need to be detailed in forms of legal regimes to be implemented [DHV 2008].

The PPP legislation models in civil law economies could give further explanation. Accordingly, due to the constitutional and other legal principles that limit private sector involvement in infrastructure development, the legal frameworks shall play a key role in integrating new investment mechanisms like PPI into the existing systems. This can be seen in Korea's PPI Act which gives priority over relevant laws by "super-power clause" stating that "This act shall precede other related acts with regard to private investment projects". In the case of Japan, the PFI Law declares that state and local governments shall commit themselves to removing or relaxing the regulations that prevent mobilization of the techniques and creativeness of the private sector. The fundamental principles prescribes that relevant sector-specific laws and laws for management of the public domain shall be removed or relaxed if such action is necessary to promote the PFI initiatives. Based on that principle, the provision of certain public services is generally subject to a special regulatory regime that may consist of substantive rules and procedures [Harada].

From the Privatization perspective, it is argued that in most economies where the public sector is responsible for providing of infrastructure services, and that, generally some form of legal authority is required to permit private involvement in infrastructure development. To facilitate the development of infrastructure in this context, there is a need to expand legal and organizational framework legislations at different levels of government to govern private investment in infrastructure sectors [UNESCAP 2007].

In general perspective of PPP promotion, the enactment of PPP legislation is needed to provide a framework authorizing government bodies to initiate PPPs and execute concession contracts in line with its policy. Accordingly, PPP legislation shall provide the authorities, functions and duties of the parties entering a PPP transaction; allocate responsibilities for the various parties involved; ensure effective oversight of PPPs and contract compliance [DHV 2008]. In addition, legal instruments may also provide responsibility between different levels of government and special PPP units to facilitate the development and implementation of PPP project [UNESCAP 2007].

In the context foresaid above, a PPP legislation shall play a key role in reducing the level of uncertainty regarding public-private partnership arrangements and increase investor confidence. In fact, legal provisions and procedures related to private sector participation usually remain various, complicated, and probably overlapped in many issues. This can be seen in the establishment of a PPP arrangement process; accordingly, investors have to deal

with many legal inconsistencies arising from a wide range of laws including investment law, company law, tax law, contract law, procurement law and infrastructure sector laws. To address these problems, many economies have enacted PPP legislation and/or have suitably amended their existing infrastructure sector laws [UNESCAP 2007].

At the microeconomic level, the legal instruments shall provide guidelines for PPP contract models, risk sharing arrangements, financial and other issues regarding the establishment of a separate commercial venture called a Special Purpose/Project Vehicle. Also, the legal instruments provide details for market test or project assessment, including procurement, negotiation and implementation of concession arrangements. Moreover, PPP legislation can facilitate the issuance of various authorization required for project implementation the concessionaire, license for exploration and extraction of mineral resources, work permits and import license [UNESCAP 2007].

Additionally, a legal framework is considered to be necessary for PPP due to it could clarify government's support to projects; in this context, specific laws and regulations provide the available incentives with which the private investors may find them feasible in setting up projects. The Japanese PFI Law and the Fundamental Principles specify basic policies for measures on legal and regulatory regime, taxation and public financial supports that the state and local governments should follow. Similarly, Korea's PPI framework illustrates concrete and detailed incentive measures for private investors, including government guarantee of up to 90 percent of operating revenue; bonus for early completion and lower construction cost; compensation for loss due to fluctuation of exchange rates; and a buy-out option in the event of franchiser bankruptcy.

The Philippines' BOT Law provides two essential financial incentives, of which one under the Omnibus Investment Code which applied for projects valued of over 1 billion pesos and the other coming from ODA funds mobilized (up to 50 percent) for projects which would have difficulty in collecting funds. It also offers local governments to provide additional tax incentives, exemptions or other relief [Harada].

2. INSTITUTIONAL ARRANGEMENT

To be established as a focal body either within a single sector or across a range of sectors to provide coordination, quality control and information related, a PPP unit is also recognized to be an essential element for the success of PPP promotions.

This part shall investigate the rationale, functions, implementation mechanism and practices of PPP unit models from economies that experience in running PPP projects by such kind of units.

In the PPP process, private investors are entering contracts with government bodies to implement activities that were in the public domain. In this model, the public sector becomes a regulator or monitor and just playing a limited role in actual service provision. Therefore institutions and institutional capacity is must-have for most economies in the initial period to organize, manage and implement a PPP arrangement. Existing institutions need to build capacity to be able to take on new roles leading to new institutions often have to be created. Institutional arrangements used to support PPP include PPP units, project implementation office and technical assistance [ADB 2008].

There are various understandings of a PPP unit. The OECD treats PPP unit as an organization formed with full or partial help of the government to ensure the essential capacity to create, support and evaluate multiple PPP agreements is made available and grouped together within government [OECD 2010]. According to the World Bank, a PPP unit is set up to promote and/or improve public-private partnership that has a long-term mandate to manage multiple PPP transactions in response to government failures (poor procurement incentives, high transaction cost, lack of co-ordination, skills, and information..) [World Bank 2007].

Meanwhile, the Asian Development Bank is on the view that a PPP unit is a point of co-ordination, quality control, accountability and information on public-private partnerships for one or more sectors. These units are formed as a new agency or within a ministry, which is seen to be at arm's length from the sector utilizing public-private partnerships as a service delivery mechanism. In this definition, the ADB outlines respective benefits of a dedicated unit for public and private partners in one PPP project. For public sector, dedicated units are able to disseminate information and provide specialized management advice to the procurement process, whereas transparency and consistency are offered to private partners [ADB 2008].

The variety of definitions leads to the controversy of PPP units' establishment. The following table shows argument both for and against the set up of a PPP unit.

Table 4.1: Advantages and disadvantages of a dedicated PPP unit

Arguments for a PPP unit	Arguments against a PPP unit
A PPP unit can separate PPP policy formulation and implementation.	PPP policy can be formulated by the same authority that does so for traditional procurement. A unit may not separate policy formulation and implementation if it can directly fund PPP projects.
A PPP unit can act as a knowledge centre on PPP project preparation, negotiation and execution. Centralization of knowledge can provide cost savings for government.	Knowledge can be supplied by internal and external project advisors appointed directly by individual ministries/agencies with specific expertise in the relevant sectoral area and/or project issues.
A PPP unit can help regulate the creation of PPPs by government organizations to ensure that they fulfil all requirements regarding affordability, value for money and risk transfer.	Line ministries/agencies together with the finance/planning ministry have expertise in assessing cost-benefits of projects and political prioritization of projects.
A PPP unit can ensure that appropriate budgetary considerations are taken for PPP projects and that contingent liabilities are also evaluated.	The closer a dedicated unit is to the relevant political leadership, the more susceptible it is to the political influence in deciding which PPP project should be initiated.
A PPP unit can give a fillip to an economy's PPP program, soliciting projects, attracting potential partners/investors, building trust and good will with private partners.	Establishing a PPP unit may imply an implicit approval of PPP as a policy tool and weaken the case for other viable procurement methods.

Source: Adapted from OECD (2008), Public-Private Partnerships: In Pursuit of Risk Sharing and Value for Money, OECD Publishing, Paris.

Although the arguments above, it is obvious that PPP units are workable in separation of policy formulation and project implementation, pooling expertise and experience within government, standardization of procurement procedures, appropriate budgetary consideration

of projects, and demonstrating political commitment and trust. By all of these reasons, the establishment of PPP units is essential.

A PPP unit is created as a new agency or within a ministry such as the treasury or Ministry of Finance. The units will bring transparency and consistency to private proponents. For public stakeholders, the units will provide a range of information and specialized management of a specialized process as well. Generally, the functions of PPP units can be classified in three categories: (i) *information and guidance*, (ii) *advisory support and funding* and (iii) *approval*, in which the first function is much more employed than two others, followed by the second function while the third one is rarely performed.

Information and guidance includes collecting and disseminating resource on PPPs and acting as knowledge centre. Guidance consists of providing standard provisions for PPP contracts and guidelines on project preparation, evaluation and procurement [DHV 2008].

PPP units also generally become involved in providing project specific advice as part of an overall advisory support role. Comparative examples show that far fewer PPP units are involved in project development and support. Support could include providing funding to pay for the costs of transaction advisors or even conducting actual procurement for PPPs (such as in Ireland). In some cases, PPP units become involved in contract management, usually at the request of the client ministry. In Victoria (Australia), the PPP unit monitors contract management by ministries and gets involved where major issues arise [DHV 2008].

A final area of activity for some PPP units is project approval. This is an area where potential conflicts of interest may arise, especially if the unit is also involved in identifying and preparing projects. This can be avoided by making projects for which the unit provided transaction support subject to approval by a separate arm of the institution [DHV 2008]. The following table illustrates the usage of function in the sample economies:

Table 4.2: Functions of cross-sectoral PPP units

		Information and guidance		Advisory and funding				Approval
		Resource center	PPP guidance material	Project specific advice	Funding for PPP preparation	Role as project developer	Role in contract monitoring	De facto approval power over PPP's
Asia/ Pacific	Andra Pradesh, India	✓	✓	✓				✓
	Gujarat, India.	✓	✓	✓	✓	✓	✓	✓
	Philippines	✓	✓	✓	✓		✓	✓
	Victoria, Australia	✓	✓	✓			✓	
Europe	Ireland			✓		✓		
	Italy	✓	✓	✓				
	Netherland	✓	✓	✓				
	UK	✓	✓	✓	✓		✓	✓
Africa	South Africa	✓	✓	✓	✓	✓		✓
North America	British Columbia, Canada.	✓	✓	✓		✓	✓	

Source: *The World Bank Group, Sept 2006.*

By another classification, the units help the main stakeholders related to PPP stick on a consistent methodology and agreed guidelines: (i) project identification and prioritization, (ii) encouraging competition, (iii) due diligence of opportunities, (iv) in compliance with transparent bidding process, (v) ensuring the appropriate treatment of employees and government assets, (vi) ensuring the most effective use of government resources. PPP units focus on all of above consideration, especially the links between the PPP unit and coordination amongst different government agencies (e.g. Ministry of Construction, Ministry of Transportation, Ministry of Planning and Investment, etc.) and the private sector to ensure PPP projects are carried out properly, satisfy the expectation of both sides and use effectively government resources [ADB 2008].

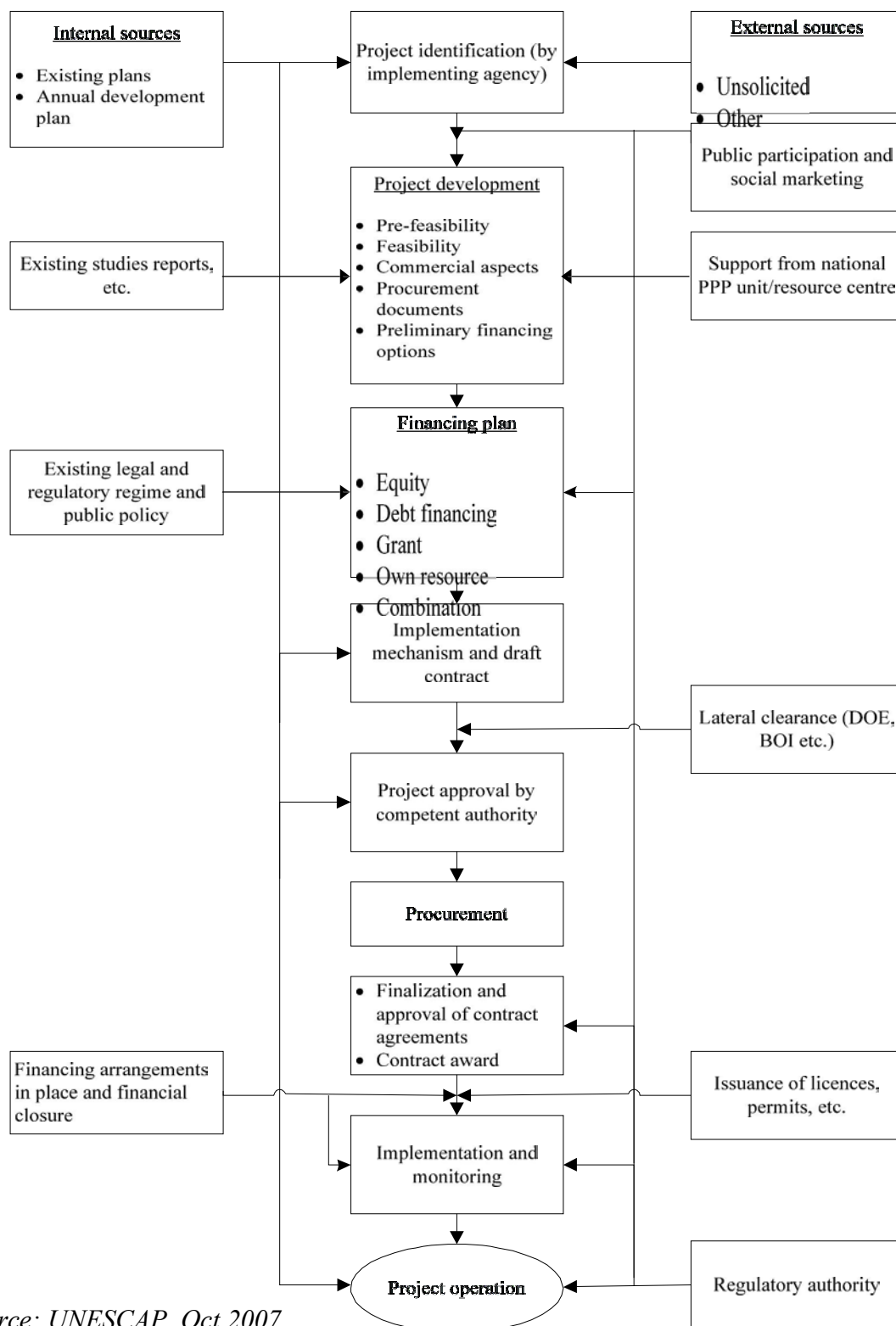
COORDINATION AND ADMINISTRATIVE MECHANISM

The administrative mechanism to implement a PPP project depends on the system of government, the overall administrative structure and the legal regime concerning PPP. As these elements vary from one economy to another, the administrative mechanism also varies correlatively. PPP activity may occur on a national or sub-national (in a federal structure) level so the sector agencies generally initiate and implement most of the PPP projects. Additionally, in some economies, local level governments such as city governments are also allowed to undertake PPP projects (the Philippines for example) [UNESCAP 2007].

PPP managements are different from economies to economies, but the most of implementation of PPP projects require the involvement of number of public authorities at a range of levels of government. A public authority normally provides a specific service; however, in some cases it is responsible for both regulatory and operational functions. This model is commonly used in the early times of private sector entry [UNESCAP 2007].

To implement a project, specific agencies and local governments need to initiate, develop and submit for approval of the national or provincial government before making procurement, negotiation and contract with the private sector. This process must be based on the legal instrument and government regulations. The steps are illustrated in the Figure 1 [UNESCAP 2007].

Figure 4.1: Steps in the PPP project implementation process



Source: UNESCAP, Oct 2007

LOCATION OF PPP UNITS

Where PPP units are mainly focused on project screening, including the value for money and affordability to the government, or disseminating good practices of PPP models, they often

take the form of a cell or group within an existing government agency. Many of the most successful PPP Units are embedded directly to government bodies from which they derive their authority such as in Victoria (Australia), South Africa, and Portugal. It also tends to be the method of choice for the more developed economies with low corruption levels and strong political systems [Valentine, 2008].

Where PPP units are to provide transactions support, the first option is to establish a unit within a ministry and rely on long-term consultants, such as in South Africa. Another choice is to create greater independence from the government, is to set up the unit as an independent entity, attached to but not fully part of the government bureaucracy such as Philippines' BOT Center or Pakistan's Private Power Infrastructure Board [Dutz, 2006].

Another alternative option originating from Canada is a government-owned company. It is overseen by a public-private board and offers attractive salaries to attract skilled and experienced personnel. A fourth approach is to set up a joint venture company partly owned by private shareholders. Such units commonly receive performance-based payment. For instance, Partnerships UK, established in 1999, is 51 percent owned by the private sector and focuses on structuring and negotiating the commercial aspects of PPP projects. Several state governments in India, including Karnataka and Rajasthan, have established joint ventures with private financial institutions to promote and develop PPP transactions.

The location of the PPP unit within the government's institutional regulatory hierarchy is actually important. The international experience shows that those positioned higher in the hierarchy tend to be more efficient and capable in their regulatory duties, because they tend to enjoy more political support. Additionally, those nearer the top have been more active in ensuring that the PPP developments have been in-line with national interests, both developmental and financial, whereas those responsible for only one sector have been more short-sighted in this regard [Valentine, 2008].

POLITICAL COMMITMENT

One of the next important issues is strong influence and clear backing from the political system. Lack of political commitment to advancing a PPP program, or lack of transparency and coordination within government agencies, will reduce the chances of success for a PPP unit. Even with good design, a PPP unit is unlikely to be effective in such an environment. The least effective PPP units are in economies whose governments as a whole are relatively less effective [Sanghi 2007].

During initial design and implementation phase of PPP unit, it is particularly important that the unit has a "patron" who can promote it's establish within the overall government structure. Once created, the PPP unit needs to have strong political commitment to ensure that it can fulfil its roles and responsibility effectively [Yong 2010].

In practice, the World Bank and PPIAF (2007) provide an insightful review of eight PPP units; they found that units in the UK, South Africa, Portugal, and Victoria (Australia) have thrived with strong government support, whereas PPP units in the Philippines, Bangladesh and Jamaica have been much less successful, due to lack of political commitment.

CONFLICT OF INTEREST

PPP units can perform a range of different functions; however, some of their roles involve potential conflicts of interest. For instance [World Bank and PPIAF 2007]:

Developing policy versus implementation (such as through a transaction capability): These are typically best kept separate, as the former involves “setting the stage”, while the latter involves a high degree of sponsorship of individual projects.

Transaction and monitoring or ensuring contract compliance do not go well together, as they can involve the monitoring of own design.

Project design and development versus public funding/financing: As project development involves promotion by the sponsor of the project, there may be considerable pressure to fund an activity even if it is not bankable.

On the other hand, in some cases, when capacities are in short supply and policies are being developed, there may be some benefits from having the same group provide input into both the development and the approval of transactions [Dutz 2006].

In South Africa the PPP Unit faces a potential conflict of interest as it provides both transactions advice for projects and advice that feeds into the Treasury’s approval process. To address this potential conflict, for projects for which the unit provides transactions advice, approvals are sought from other groups in Treasury. In British Columbia the Treasury retains approval powers rather than delegating them to Partnerships British Columbia. Partnerships UK sometimes supports local governments in PPP transactions and has a role in the approval of local government PPPs through the submission of a report to an interdepartmental committee, but the two activities are carried out by different staff. Another layer of inspection can be added by bodies such as audit authorities. In the United Kingdom the National Audit Office has undertaken a number of reviews of the government’s PPP program [Dutz 2006].

Possibilities for conflicts of interest seem to be greater where PPP units are public-private joint ventures and where success fees are paid for closing transactions. These cases require careful structuring of the arrangements for corporate governance. Private sector participation is added to orient the unit toward private sector modes of thinking and working, but the unit still must keep the policy perspective and objectives of the public sector. Partnerships UK has an advisory council, made up entirely of members from the public sector, that approves the selection criteria Partnerships UK uses in deciding which projects to become involved in.

Undoubtedly, a public-private unit generally neither issue PPP policies nor play the main role in assessing the costs of or approving PPPs. A public-private unit that provides transactions

support therefore needs to be complemented by capacities to perform these functions elsewhere (typically in the finance ministry).

NATIONAL UNITS AND SUB-NATIONAL BODIES.

In many economies sub-national governments make heavy use of PPPs. Should national PPP units play a role in these transactions? In practice their role is strongly determined by the legal and fiscal relationships between the national and sub-national levels of government. In the United Kingdom national agencies provide advisory support to local authorities, and a central government interdepartmental committee chaired by Treasury approves most local government PFI projects. In South Africa a primary motivation for creating the PPP Unit was to provide oversight of, and improve the quality of, provincial government PPPs.

Economies with greater decentralization see less of a role for a national unit in sub-national PPPs. In Canada several provinces (such as British Columbia and Quebec) have their own cross-sectoral PPP unit. The federal government agency, the P3 Office, merely acts as a resource centre and promotes the use of PPPs. In Australia the national government has virtually no role in state-level PPPs and instead has focused largely on PPPs for services for which it is responsible. State governments develop PPPs for the services for which they are responsible, with little involvement by the national government. The states have even established their own information sharing structures, with a PPP forum for government policymakers and a PPP working group, for the heads of PPP agencies, to coordinate the pipeline of PPP projects and contractual approaches.

UK CENTRAL PPP UNIT-PARTNERSHIP UK

[Cuttaree, 2007] Partnership UK was established in 1999 and became operational in 2000 by the UK Government. Its primary mission is to "...accelerate the development, procurement and implementation of public private partnerships."¹⁶

Partnership UK works exclusively with public sector and is mainly a project development agency to provide the public sector with improved client capability and being available to support implementation of PPP programs. It responds to demand from public sector clients and works on very large or innovative projects. All PPP transactions must be given Treasury approval at several stages before final contract signature.

Location: Partnership UK is a separate entity, structured as a PPP (51% private sector, 49% Government).

Structure: it has evolved from a Treasury Task Force to a separate Unit. Partnership UK's Board constituted by non-executive Chairman, 4 executive directors, and 7 non-executive

¹⁶ Partnership UK 2007 Annual Report.

directors. Advisory Council oversees the work of Partnership UK and ensures it follows its charter.

Role: It serves as a filter to exclude fiscally irresponsible PPP transactions. Its design is influenced by Treasury PPP Task Team in the UK (focus on value for money, risk transfer, affordability) with objectives are to make sure all PPPs meet above criteria and establish framework to protect Government against PPP likely to fail.

Staffing: their staffs are composed of private and public sector experts, with strong skills in project finance (finance, legal, etc...). The staffs also bring market knowledge which is important to test interest of the private sector. Board of Directors is composed of Executive from the public and private sector. Advisory Council is exclusively composed of members of the Public Sector.

Funding: It charges a fee to the public sector for its services. Fees are set in Framework Agreements signed with client and renewed every four years. Fees are benchmarked against private advisory companies

Interface: Policy Taskforce sits within Treasury and sets guidance on procurement, deal structuring and evaluation. Treasury's Project Review Group uses Partnership UK for technical component of review process for local authority projects. It has also set up joint ventures with public authorities (Partnership for Health, Partnership for Schools).

SOUTH AFRICA CENTRAL PPP UNIT

[Cuttaree, 2007] The PPP Unit was established in 2000 as a filter to exclude fiscally irresponsible PPP transactions. Its design is influenced by Treasury PPP Task Team in the UK (focus on value for money, risk transfer, affordability) with objectives are to make sure all PPPs meet above criteria and establish framework to protect Government against PPP likely to fail.

Location: PPP Unit is located within the South African Treasury.

Structure: It has 5 functional desks: Financial, Legal, Business Development, Project Evaluation, and Municipal.

Staffing: Their staffs are composed of professionals giving hands-on assistance on sector-specific (health, tourism ...) or performing specific issues (legal, financial ...). The unit assigns 1 or 2 internal project advisors to assist line departments from project registration to signing of PPP agreement.

Funding: It is fully funded by the Treasury.

Interface: The PPP Unit works closely with the Review and Liability committees of the National Treasury for the approval process and provides technical assistance to Line Department. The National Treasury has approval rights for local or provincial projects and can make advisory recommendations on local government projects.

AUSTRALIA SUB-NATIONAL PPP UNIT: PARTNERSHIP VICTORIA (PV)

[Cuttaree, 2007] Government of Victoria introduced Partnership Victoria (PV) in 1999, following the example of UK, in anticipation of expansion of PPP program (started in 1980). It focuses on optimal risk transfer, efficiency maximization and whole-life costs minimization. PV develops policy and guidelines, promote implementation of best practice and provides specific advice to departments and agencies. It used for major and complex capital projects with opportunities for innovation and risk transfer.

Location: The PV unit was designed as a team located within the Treasury

Structure: PV Unit is located within the Commercial, Infrastructure & Risk Management Group of the Commercial Division of the Treasury. Treasurer is responsible for developing and overseeing the Partnership Victoria Framework. Each PPP project remains under the responsibility of the relevant Ministry.

Staffing: Staff including acting Head has extensive private sector experience.

Funding: It is financed by Government of Victoria.

Interface: Federal Government issued PPP guidelines limited to Federal level projects. A national PPP Ministerial Forum was created in 2003 to improve policy consistency, coordination and capacity building across regions.

HUNGARY CENTRAL PPP UNIT

[Cuttaree, 2007] Hungary was the first Central and Eastern Europe (CEE) economy that decided in 1991 to rely almost entirely on private concessions for its highway development. Early failures need to improve efficiency of PPP arrangements and limited institutional memory and capacity contributed to the creation of the PPP unit.

The PPP Unit was created within the Ministry of Economics and Transport in 2003 with the mandate to create adequate conditions for the introduction of PPP in Hungary. An interdepartmental committee was setup in 2003 between the Ministries of Economy and Transport, Finance, Justice, PM office and Central Statistics Office.

The objectives of the committee are to consider PPP plans prepared and submitted by departments and local government and monitor the implementation of PPP projects.

CZECH REPUBLIC CENTRAL PPP UNIT: PPP CENTRUM

[Cuttaree, 2007] PPP Centrum was created in July 2004 to speed up the preparation of legal environment and methodological procedures for PPP. It initially started as a knowledge centre; its role has evolved to include technical advisory for PPP project identification, preparation, evaluation and monitoring.

PPP Centrum is a joint-stock company, with Ministry of Finance as the only shareholder, and has been interacting with the public sector on a fee-for-service basis since 2007.

Government policy makes it mandatory for public sector to draw on resources available at the PPP Centrum. Czech Republic cautious approach seems to have been driven by failed attempts to implement roll base concessions of D5 motorway. The economy is currently in the final stages of PPP framework (Concession Law, PPP Unit, regulations, guidelines, etc...).

It reports to a Board of Directors and is monitored by a Supervisory Board (with representatives from the Ministry of Finance, Ministry of Regional Development, Ministry of Labour and Social Affairs, Office of Czech Republic Government...).

CHILE PUBLIC WORKS CONCESSION COORDINATION¹⁷

In 1991 Chile began to rely on private concessions for infrastructure development. 1995 the country inaugurated its first important concession project: El Melón Tunnel. In 1996, the Chilean Congress passed a concessions act, which empowers the Ministry of Public Works (MPW) to award any public works project as a concession. The Public Works Concession Coordination (PWCC) was established to implement a high quality PPP and build up with the private sector an economic and social infrastructure of high technological level.

The PWCC supports implementation of PPP programs for almost the entire public sector, develops policy and guidelines, promote implementation of best practice, provides specific advice to departments and agencies and evaluates every PPP project presented by the private sector.

Location: PWCC is located within the Ministry of Public Works.

Structure: It has 6 functional desks: Financial, Legal, Project and Technical Evaluation, Business Development and Bidding Process, Works Supervision and Exploitation- Operation Supervision. Since 2010 there is a consulting Concessions Commission to previously analyze and made recommendations about all public and private projects presented to the PWCC.

Staffing: Their staffs are composed of public sector experts and professionals, with strong skills in project finance, legal, environmental and engineering matters. Further skills for particular concessions programs can be required from specialists.

Funding: It is fully funded by the Treasury

Interface: The PWCC works closely with all Public Departments involved in a PPP's process. Any Department (Transport, Health, Justice, etc.), Region or local government can ask the PWCC to carry out a PPP, for instance, to build up hospitals, prisons, urban infrastructure or airports.

¹⁷ Source: Felipe Henríquez, Legal Advisor Services and Investment Dept., General Directorate of International Economic Affairs, Ministry of Foreign Affairs; and International Coordination, Ministry of Public Works (Chile)

GENERAL OUTCOME ASSESSMENTS

PPP units have been shown their successful operations including Partnership UK, Partnership Victoria, Chile PWCC and South Africa PPP Unit while PPP units have not been yet successful consist of two latter PPP units.

Partnership UK contributed to 10% of total public investment in 2004. It represented about 2/3 of all activity in Europe (1994-05).

Chile PWCC has contributed to drastically reduce the infrastructure gap existing in the 90's. About 45 PPP projects are operating and 17 under construction. Many countries and multilateral banks are studying this interesting model.

Partnership Victoria average savings through PPP is 9% compared to public sector. Only 22% of PPP had run over budget compared to 73% for line agency construction projects.

South Africa PPP Unit's regulations, manuals, and transactions referenced as good practice outside South Africa. It supports development of projects while ensuring fiscal impact remained manageable.

In terms of Hungary PPP Unit, It is too early to assess impact of PPP Unit. The creation of PPP Unit comes late in relation to early experience, tainted with some failures, of PPP projects. Regarding Czech Republic PPP Centrum, ongoing efforts to strengthen PPP Framework has not completed but the Unit contribution is acknowledged. In the meantime, successful PPP projects are still expected.

3. PPP MODELS

Public Private Partnerships remain a variety of models categorized on the nature of PPP arrangements such as capital asset ownership, investment responsibility, risk assumption and contract time [UNESCAP 2007].

This part shall provide the analysis of internationally recognized PPP models based on risk assumption. Accordingly, PPP models can be categorized into 5 broad categories as follows:

- Supply and management contracts,
- Turnkey projects,
- Afterimage/Lease,
- Concessions, and
- Private ownership of assets.

PPP models have their own features that may fit with the objectives of different projects. Such characteristics including the technological development, regulatory regimes, and public view on the service supply shall play as essential factors in deciding a particular form of private participation. For example, management contracts are common for existing assets in the water and transport sectors, afterimage/lease in the transport sector, concessions in the transport and

telecommunication sectors, and turnkey and private ownership of assets in the power sector [UNESCAP 2007].

[UNESCAP 2007] A management contract is a concession arrangement authorizing private investors to provide partially or wholly management of infrastructure facilities such as high way or air ports. In this contract model, the asset's ownership still belongs to the public sector, whereas private sector is responsible for providing a service with their skills of service design, operational control, labour management and equipment procurement. The private contractor is paid a fee to manage and operate services. Normally, payment of such fees is performance-based for short term, typically 2-5 years, but not generally associated with commercial risk. The main features of this model include the followings:

Advantage

- Acceptable in a short term project;
- Less complicated among PPP categories;
- Politically and socially recognized for certain projects such as water and airports in several states.

Disadvantage

- Investment incentive and efficiency remain limited;
- Undertaken in available infrastructure facilities and the government are responsible for all risks.

In fact, the model of supply/management contract exists in a variety of forms such as supply or service contract, maintenance contract and operational contract as follows [UNESCAP 2007]:

SUPPLY OR SERVICE CONTRACT

Supply of equipment, energy and power, raw materials and/or labour are typical forms of supply or service contract. Typical examples can be seen in catering, cleaning, medical and luggage handling service arrangements. Such arrangements are also known as outsourcing.

MAINTENANCE CONTRACT

Assets maintenance contracts become common in transportation sector. In some contracts, equipment suppliers are also responsible for maintenance of assets provided. For example, in Bangkok (Thailand), the companies supplying public buses for Bangkok Metropolitan Transport Authority are obligated to maintaining those buses.

OPERATIONAL CONTRACT

The management/operational contract of main transport facilities such as a port or airport become significant in circumstances where human resource in operating the facility remains limited or there is an introduction of new service. Such management arrangements also become common in the transport sector for providing some of the non-transport elements of transport operations like ticketing system of public transport and reservation systems. Typical operational models may obligate investor to perform managerial tasks with a fixed payment. In more complicated models, operators are offered to undertake targeted performance with the expenditure calculated on their fulfilment partially.

[UNESCAP 2007] Turnkey is one form of government procurement for infrastructure facilities, in which investors are selected and assigned to design, build a facility at fixed fee, rate or total cost. In this arrangement called by Design-Build, risks arising in the design and construction period shall be allocated to investors. The main characteristics of this model include the followings:

Advantage:

- International recognized model,
- Contract agreement remains simple,

Disadvantage:

- There is no substantial incentive to encourage early completion among investors.
 - All risks except for those in the construction and installation periods are belonged to the public sector,
 - Investment mobilized in a short term,
 - Only limited innovation remains feasible.
-

[UNESCAP 2007] Regarding afterimage/lease contract model, government authorities are responsible for investment and suffer construction risks. The operational risks shall be taken by operator when leasing both infrastructure and equipment from the government for definitive period. Operators are responsible for running the infrastructure facility and providing associated ancillary services but do not invest substantive investment. However, this model is implemented in combination with other contracting styles such as build-rehabilitate-operate-transfer which generally modelling much longer contract period in which the private investor is offered to invest significant capital.

Main features of this model include the followings:

Advantage:

- encouraging private investment capital under longer term agreements
- Appropriate for important facilities such as ports and airports

Disadvantage:

- Offering little incentive for private investment encouragement
 - Risks are allocated to public sector
 - Considerable regulatory oversight may be required
-

[UNESCAP 2007] The concession contract model grants specific rights for an entity (usually a private company) to build and operate a facility for a fixed period of time. However, the fundamental ownership of the facility and right to supply the services are still belonged to the Government.

Payment in concessions arrangement can be taken in both methodologies: concessionaire pays to government for the concession rights and the government may also pay the concessionaire, which it provides under the agreement to meet certain specific conditions. *“Usually such payments by government may be necessary to make projects commercially viable and/or reduce the level of commercial risk taken by the private sector, particularly in the initial years of a PPP programs in an economy when the private sector may not have enough confidence in undertaking such a commercial venture. Typical concession periods range between 5 to 50 years”* [UNESCAP 2007].

This contract model owns its following features

Advantages:

- Significant risks are shared by Private sector
- Substantial private investment mobilized
- Benefits remain potential in all project states
- Technological application is encouraged

Disadvantages:

- Complicated implementation and administration
- Contract negotiations may take longer time
- Regulatory framework is required
- Liabilities to the government exist in the medium and long term.

Concessions may be awarded to a concessionaire under two types of contractual arrangements namely Franchise and BOT agreements

FRANCHISE

A franchise contract offers mechanism for private investors (that are recognized to be concessionaire) to provide services which are specified by the government authority. In this arrangement, investor suffers commercial risks and may be implement obligated investments. This form of contract model had become dominant in service supply of public bus or railway transportation. Additionally, routes over a contiguous area can be provided under franchise agreements [UNESCAP 2007].

BUILD-OPERATE-TRANSFER

In one BOT (Build-Operate-Transfer) or any other variant forms of similar contracts such as Build-Transfer-Operate (BTO), Build-Rehabilitate-Operate-Transfer (BROT) and Build-Lease-Transfer (BLT), investors responsibly construct infrastructure facilities and conduct business by running the facilities in an agreed period. After that, the infrastructure facilities are transferred to public sector.

In the PPP arrangements foresaid, the government retains its ultimate ownership; and all risks are allocated to parties considered best fit to manage; accordingly, construction and operating risks are generally allocated to the concessionaire except for the BOT model where the government may be liable to provide loan guarantees including both sovereign and commercial loans [UNESCAP 2007].

BOT model has become popular in all sectors and in many economies around the world. In practice of implementation of a BOT concession, concessionaires usually establish a special purpose vehicle (SPV). The SPV may be formed under the form of a joint venture between private enterprises and/or entities from public sector. In addition to equity participation, the government may also provide capital grants or other financial incentives to a BOT project.

[UNESCAP 2007] Under the form of “private ownership of assets”, private investors are responsible for design, construction and operation of infrastructure facilities and the public sector may hand over the ownership of assets, in several contracts, to investors. However, because of buildings, operation and incorporated services are supplied by one entity; payment is only made against successful service provision in accordance with pre-defined qualifications.

In comparison with the customary government procurement contract, which offers design, construction and operation to be supplied separately, the contractual model mentioned above would narrow risky elements such as cost overruns during construction stages or an

unproductive technology application. In other words, public sector may get relief from bearing of design and construction costs and the transferring significant risks to private sector.

The main features of this model can be summarized as follows:

Advantage:

- Significant the risks are transferred to private sector
- Mobilizing substantial investment from private sector
- Potential for efficiency gains
- High innovation incentives.

Disadvantage:

- Complicated for implementation and management of the contracts
- Negotiations may take longer time
- Effective legal framework plays as a key role
- Liabilities to the government remain the medium and long term

There can be three typical categories under this form:

- Build-Own-Operate type of arrangement
- Private Finance Initiative
- Divestiture by license or sale

BUILD-OWN-OPERATE

Under a Build-Own-Operate (BOO) contract and any other similar forms such as Design-Build-Finance-Operate, investors responsibly constructs, have possession of, manages a facility and to supply service to its users. This contract model has become popular in the power sector. For a BOO power project, a long-term power purchase arrangement, commonly known as off-take agreement at an agreed price from the project operator, may or may not be negotiated by government authorities or a power distribution provider.

PRIVATE FINANCE INITIATIVE

Similar to the BOO model, the Private Finance Initiative (PFI) offers private investor opportunities to build, own and operate infrastructure facilities. However, the services supplied by the private sector are purchased by public sector through a long-term agreement. PFI projects therefore causes direct financial obligations to government in any circumstances. In addition, government may be liable for guarantees of public or private commercial loans.

In the PFI model, asset ownership at the end of the contract period may or may not be transferred to the public sector. Apart from building economic infrastructure, the PFI model

has been used also for developing social infrastructure such as school and hospital buildings, which do not generate direct “revenues”.

DIVESTITURE

Divestiture is such a form of privatization. Accordingly, a private investor purchases equities in a government run enterprise. However, management right over the state owed enterprise would not arise from the private share. In fact, privatization in this case can be involved of transferring deed of title from the public to a private sector. This may be undertaken either through outright sale or through public floatation of shares of a previously state enterprise.

4. RISK MANAGEMENT

Risk management is always recognized to be the most important element in establishment of any PPP arrangements. Accordingly, a properly risk allocation mechanism are essential for the implementation and success of infrastructure project and governments are aiming at not assuming the considerable financial risks that come with delivering such projects. However, an explicit arrangement for sharing of risks between parties involved need to be taken into account [Valentine, 2008]. This part shall discuss the principles for risk allocation and several instruments dealing with risk in PPP arrangements.

As in any other infrastructure projects, there is always a wide variety of risks associated with PPP arrangements. Those include construction risks, technology risks, environmental risks, operating risks, legal risks, political risk, and commercial risks [Valentine, 2008].

Thus, the most important element in setting up a PPP is properly sharing the inherent risks among PPP partners. The international recognition for that is risk have to be relocated to the party most capable of handling it, which is proved to be private investors undertaking a project.¹⁸ However, private sector participants are generally unenthusiastic to accept bearing such risks without necessary public sector supports such as subsidies, loan guarantee or other investment incentives, including tax exemption or tax holiday [Valentine, 2008].

In line with the statement foresaid, Partnership Victoria Agency is viewed that governing risk transfer is based on the principle in which risk has to be allocated to the parties who are best able to manage it at least cost and taking into account public purposes. Thus, in decision making on risk sharing, it is essential to consider the risk management capability by the persons who assume risks.¹⁹

There are a number of methodologies, including the “rule of thumb” which is based on practical experiences and “sophisticated simulation models” available for assessment of different kinds of risks in PPP arrangements [UNESCAP 2007]. The best-working methodology for identifying which parties dealing which risks is based on "risk matrix" analyzing. Accordingly, a wide range of risks arising in a project or PPP arrangement, including the magnitudes of risks and potential mitigation strategies are specifically investigated [Valentine, 2008].

¹⁸ OECD, Transport Infrastructure Investment: Options for Efficiency (joint report by the transport Research Centre of the Organization for Economic Cooperation and development and the International Transport Forum, 2005).

¹⁹ Department of Treasury and Finance, 2000, *Partnerships Victoria*, (Government policy of Victoria, Australia).

A risk matrix is developed by identifying possible risk elements in term of quantity and quality. An illustration of a risk matrix has been provided under a hypothetical risk allocation table as follow [UNESCAP 2007].

Table 4.4 A hypothetical risk allocation table

Risk	Contractor	Operator	Equity	Lenders	Government	Insurance	Unallocated
1. Construction overruns/delays	*						
2. Change in legal regimes					*		
3. Land acquisition					*		
4. Approvals/licences /permits	*				*		
5. Variations	*				*		
6. Taxation	*		*	*	*		
7. Tariffs and charges		*	*		*		
8. Revenue/Traffic/ Demand			*	*	*		
9. Operation		*					
10. Maintenance		*					
11. Defects liability		*					
12. Natural disaster						*	
13. Industrial action		*	*		*		
14. Environmental			*		*		
15. Civil disobedience		*			*		
16. Insurance						*	
17. Force majeure							*
18. Confiscation					*		
19. Interest rate risk			*	*			

Source: Adapted from Antonio Estache and John Strong, *The Rise, the Fall, and ...the Emergency Recovery of Project Finance in Transport*, World Bank Institute. Available at <<http://wbi0018.worldbank.org/Research/workpapers.nsf/0046a83407e91901852567e50051cc43/8b0290555e2424f3852569130063d5ee?OpenDocument>>

The hypothetical risk allocation Table could be treated as a good illustration of various risk allocation. It identifies which relevant parties including government, investors, bankers or other partners to PPP may get involved and allocated of the risks. Although, built up from the perspective of the government, the table provides comprehensive perspective of how risk can be identified, assessed and mitigated. Accordingly, the matrix categorizes essential risks, their magnitudes, possible alleviation methodologies and serves as a useful tool for the purpose of risk sharing among parties to PPP arrangements.

It can be also recognized that the general principle is project risks are allocated to the party that is the most able to manage them most cost effectively. For instance, policy changes and political risks are more appropriate to the government, whereas construction and operating risks are best fit with the private sector. In principle, the all commercial risks are commonly allocated to the private sector. However, in several circumstances, a part of commercial risks shall be shared by the public sector in order that PPP projects become commercial viable. “In such cases normally a provision is also set to share any excess revenue if the demand exceeds the expected level” [UNESCAP 2007].

Similar risk sharing approach can be found in the following table which indicating different types of risks associated with a PPP road project and possible allocation of these risks among relevant parties.

It is of essential for relevant stakeholders that “each risk is assessed and, where possible, a range of values put on each risk and on combinations of risks occurring” [DHV 2008].

Risk	Operation & maintenance contracts	Turn-key (Design & Build)	O&M Concession (Lease)	Joint Company	DBFM	BOT
Design	Public	Private	Public	Shared	Private	Private
Construction	Public	Private	Public	Shared	Private	Private
Finance	Public	Private for duration of construction, then public	Public for construction & Private if upfront lease payment is required	Shared	Private	Private
Maintenance	Private	Public	Private	Shared	Private	Private
Revenue	Public	Public	Private	Shared	Public	Private

An appropriate toll tariff system is the main instruments for allocating risks between road users and the operator during the concession period.

It is important to note that if risk sharing among parties involved is not achieved in an appropriate balance, this shall increase investment expenditures and cause PPP parties to be unable in fully realizing their potential. In practice of project assessment, bankers or other lenders have to analyze and predict potential risks under compulsory due procedures. The more assessed risks, the higher fee for lending money would be charged. Thus, project financing expenditure shall increase [UNESCAP 2007].

Most of risk allocation elements can be managed in the appropriate manner by establishment of a Special Purpose Vehicle which is a separate legal person formed jointly by investors in order to undertake PPP project. “This allows multiple companies to each allot a specific amount of resources, apart from their regular operating budgets and capacities, to a project based on the agreed risk allocation. In turn, the SPV manages risk-sharing agreements for the project with the public sector” [Valentine, 2008].

Similar view providing that “with most PPP the risks transferred by the public sector to the private sector are then reallocated between the different private sector parties participating in the PPP project, using a Special Purpose Company with subcontracts as a means of distributing these risks amongst the private sector participants” [DHV 2008].

Accordingly, the Special Purpose Company is run a number of equity investors, of which several shareholders may also works as contractors (in a consortium) for the Special Purpose

Company to implement the design and construction of infrastructure facilities under the project. Others may participate in the company as financial investors. Furthermore, the Special Purpose Company can also mobilize financing under the form of debt or bonds to meet the demand of construction and operation investment [DHV 2008].

Thus, under the Special Purpose Company structure mentioned above, projects risks have to be reallocated to the most appropriate parties as follows:

- Contractors, under a subcontract entering by consortium, shall bear construction risk,
- Service supplier, under a subcontract with the Special Purpose Company, shall assume the risks arising from operation states,
- Insurers are responsible for risks regarding damage and business interruption,
- The Special Purpose Company, its lenders and investors are allocated remaining risks.

LOAN GUARANTEE

In reality, government authorities may consider loan guarantees for selected projects to help investors reducing its risk level, make a project commercially viable and encourage investment capital. In case, such guarantee is provided, investments risks can be assessed at the zero or no risk level in comparison with sovereign debt. However, the guarantees increase Government's liabilities and may cause negative effects to the macrocosmic management. Additionally, full guarantee by government shall undermine operator's incentives in management of the project risks [UNESCAP 2007].

In fact, there are international organizations, including the Multilateral Investment Guarantee Agency (MIGA) belonging to the World Bank Group, offers guarantee for selected projects undertaken by private companies in developing states. Accordingly, MIGA guarantees against foreign currency transfer restrictions, expropriation, agreement breach, war and civil disturbance. The Asian Development Bank has also a similar mechanism to providing loan guarantee for private projects [UNESCAP 2007].

In the Philippines, projects undertaken by local government authorities are offered loan guarantees by the National Agency [UNESCAP 2007].

In the case of Indonesia, all risks guaranteed by the Indonesia Infrastructure Guarantee Fund (IIGF) shall be fallen under the scope of Contracting Agency's responsibilities. However, sponsors shall separately provide other instruments to cover commercial risks, political risks or other risks that go beyond Contracting Agency's commitment. In order to get such guarantee, investors have to confirm their demands and willingness to pay for the guarantee expenditure; the Indonesia Infrastructure Guarantee Fund shall not guarantee any risks for

which investors can purchase coverage from the commercial market, for instance foreign exchange risk.²⁰

Hopefully, the involvement of multilateral financial organization shall be a good channel for better evaluating and monitoring risks.

INSURANCE

In running PPP projects, it is essential to establish a comprehensive insurance mechanism (with more than one insurer) to deal with risks beyond the control of the parties, especially in case of force-majeure. Accordingly, when the force-majeure occurs, the parties lost the abilities to perform their responsibilities under the project agreement. This is such an event that is unforeseeable, unavoidable and external that makes execution impossible, and that parties to the contracts are waived from penalties. As investigated by Jeffrey Delmon, *“the risk of force majeure is generally allocated to the grantor. The theory goes that the grantor is best able to manage force majeure risk, as such risk relates partially to the activities of the host country government and its relations with other such risk, given its size and the difficulty of obtaining adequate insurance. However, in certain markets, the grantor may require the project company to bear a portion, or all, of the force majeure risk”* [Delmon 2009].

²⁰ Indonesia Infrastructure Guarantee Fund (IIGF), An Introduction To PT Penjaminan Infrastruktur Indonesia (Persero), Infrastructure Asia 2010.

5. VIABILITY GAP FUNDING

The viability of projects is another necessity in setting up PPP arrangements. As mentioned earlier, it is optimal to transfer risk to the party most capable of handling it, which has been found to usually be the private sector participants. However, without government support such as funding from the traditional sources of public sector, it is difficult to promote commercially viable projects properly in PPP arrangements [UNESCAP 2007].

This part shall investigate several issues regarding the necessity and instruments for viability gap funding from the government in order to ensure the viability for PPP projects.

Public infrastructure projects are generally characterised by substantial investments, long gestation periods, fixed return. Attraction of private investors' engagement in such projects remains a challenge.²¹ The desire to increase the quality and efficiency of public infrastructures and limited in government budget are the reasons to make governments around the world have increasingly delegated the provision of a variety of infrastructure services to the private sector.²² The partnership between public and private is more developing and attractive. In other words, PPP-a long-term cooperation contract form between public and private, has been generated in the context of financial shortages in public sector;

Investment in infrastructure project is one of highest level investments of every developing government that cannot be undertaken out of public financing alone as the Government has budgetary restrictions to increase its spending on infrastructure investment [Manasse 2005].

The Government will have to put in place a system to attract private sector investors to develop infrastructure and improve efficiency of the PPP. PPP has the following objectives:²³

- To reduce the cost and price
- To increase the quality
- To reduce the risks and failures
- To improve coordination
- To share responsibility and capacity.

For private investors, feasibility and profitability of the project is the most important criteria for consideration before investment.²⁴ The infrastructure investment projects are not financially viable on stand-alone basis as they have long gestation period and having limited

²¹ http://www.pppinindia.com/pdf/scheme_Guidelines_Financial_Support_PPP_Infrastructure-english.pdf

²² Public Private Partnerships – An International Analysis – from Legal and Economic Perspective, AsiaLink, EUROPEPAID

²³ Technical Assistance Report, Kingdom of Thailand: Mainstreaming Public Private Partnership, 2010

²⁴ International Review – Government Support and Viability Gap Funding For PPP; Package 3 Establishment of Viability Gap Financing in Vietnam, Crisil Infrastructure Advisory, submitted to World Bank, 2009

financial return and they are not attractive to the private sector. The upfront assistance from the government to make the project commercially or financially viable is very necessary. Accordingly, public authorities should give a scheme on financial assistance and create the VGF to support;

Viability Gap Funding (VGF) Scheme is a crucial policy and financing instrument to encourage the private sectors involve to infrastructure projects. It would reduce the effective cost that the private investor needs for investment of the infrastructure project. The reduction in the effective expenditure in investment would increase the return on the private investment, making it more attractive as an investment opportunity.

Thus, the instruments are offered in a way that can significantly improve the financial viability of projects and reduce their implementation risks to make them attractive for the private sector [DHV 2008].

In practice, there are various instruments and methodologies that can be used to reduce risks and uncertainties arising in PPP arrangements. Those kinds of such instruments and incentives are subject to the risk allocation structure the risks the private sector may assume [DHV 2008].

In order to make some PPP infrastructure projects viable, many alternative modes of government support to enhance project viability and attract private investors in investment for infrastructure are used in the developed as well as developing economies. A government may consider providing financial support to the project in the form of cash grants, loans or in-kind contributions. A number of PPP infrastructure projects in Southern Europe have been structured in this way.²⁵

Most governments, however, while wanting the infrastructure project to be provided by a PPP arrangement, will wish to distance themselves from the financial burden and risk of the project. Indeed, a major reason for a government to enter into long-term PPP arrangement for a project is to pass off the cost and burden of the development of the project.

Governments may also be requested to support PPP infrastructure projects by providing guarantees. There are a number of guarantee mechanisms available to a government who want to support the viability of a project in this way, such as guarantees for the performance of a public off-taker (quite usual), equity guarantees, debt guarantees and revenue guarantees. In general, governments should seek to minimize guarantees to PPP projects.

²⁵ Guidelines for Government Support to Public–Private Partnership (PPP) Project, Prof. Ole Steen Olsen at <http://www.carecinstitute.org/uploads/events/2009/PPP-Workshop-PRC/Guidelines-for-Government-Support.pdf>

- UNCITRAL

Under UNCITRAL, there are various forms of government supports as follows:

- Public loans and loan guarantees;
- Equity participation
- Subsidies
- Sovereign guarantees
- Tax and customs benefits
- Protection from competition
- Ancillary revenue sources

- Korea

The forms of government supports prescribed by law are as follows:

- The grant of a subsidy or long term loan by the state or local government
- The establishment of the Infrastructure Credit Guarantee Fund
- The equity participation up to 50% of the total investment amount
- The purchase of the project by the state or local government in unavoidable circumstances
- A discount or an exemption of certain charges
- Reduction or exemption of the taxes
- Implementation of supplementary projects (jointly with the private investor)

- Japan

In Japan, government support includes the followings:

- Interest free loan from the government financial institutions
- Necessary tax measures

There was an international review on VGF instruments and mechanism for their delivery to PPP projects was undertaken for Chile, European Union, India, Korea and United Kingdom. Based on this review, there are some following VGF instruments to be used:

CONSTRUCTION COST CONTRIBUTION

²⁶ <http://www.adb.org/Documents/Reports/Consultant/40138-THA/40138-01-THA-TACR.pdf>

It is used popularly in Korea and India. The competent authority, during project preparation stage estimates the construction subsidy that will be required for an individual project.

It is provided in the form of public sector capital contribution, usually spread over the construction period. It has the effect of reducing the capital expenditure that the private investor needs to make in the project.

Construction Cost Contribution is not a onetime payment but is spread over the construction period. The construction subsidy would be granted on a yearly or quarterly basis and will not be concentrated in a specific year.

The disbursement of the construction subsidy is usually linked with progress of the project and would also take into consideration the completion level of the respective projects and would be disbursed after financial closure

OPERATIONS COST CONTRIBUTION

Operational Cost Contribution is a form of government support which contributes towards operational expenditure of the project. It has the effect of reducing the effective cost of operations that the project has to bear.

On efficiency grounds, infrastructure services should be priced at their marginal cost, but there are instances when the government may want to price services below costs. For industries characterized by increasing returns, charging the marginal (as opposed to average) cost actually requires a transfer from the government in order to cover fixed costs. Also, when the provision of some services creates positive externalities which are reflected in social, but not private, welfare, the government may want to encourage the access to these services. Similarly, the government may wish to provide preferential access to services to some class of users [Manasse 2005].

In cases where services are indeed priced below cost, government support should take the form of subsidies or of direct transfer to consumers. Subsidies should fill the difference between marginal costs and the price charged to users. At the bid stage, competition between perspective concessionaires on the basis of the lowest required subsidy and/or the lowest price charged to consumers can be useful in order to dissipate rents and to minimize government outlays.

This form of Government support is provided generally where there is a need to keep the user charges lower than that determined (considering project viability) because of social considerations. It is also provided in case of infrastructure services where the cost recovery is low.

MINIMUM REVENUE GUARANTEE (MRG)

This MRG is used popularly in Korea, Chile, India and Mexico

PPPs inherently carry high risks for the investor due to uncertainties regarding demand forecasting. The government is operating a risk-sharing system as a means of inducing private investment. Under the MRG provision, the government provides partial coverage for yearly operating revenue that falls below a specified limit of the estimated revenue stipulated in the agreement. When yearly operating revenue exceeds the estimated revenue by a specified limit, the excess revenue is redeemed

The schemes also specify the level to which the guarantee would be redeemed. Typically projects where the government has provided for Minimum revenue Guarantees, the sponsoring government requires that the developer shares a part of any surplus revenue (over the projected revenue). The typical modes of redeeming Minimum Revenue Guarantees in infrastructure projects are in the form of additional public sector capital contribution, extension of concession period or increase in user charges.

SERVICE PAYMENTS MECHANISM

In Korea, Australia and South Africa the government can provide service payments to approved projects. Service Payments mechanism involves a private sector developer constructing an asset and providing an infrastructure service against a fixed consideration paid over the life of the Concession period. The fixed consideration, by definition, compensates the developer for capital expenditure, operational expenditure, financing costs and reasonable return on investment.

In effect, the sponsoring Government pays for the construction and operation of the asset while the private developer executes the project and delivers the service efficiently. The Government pays entire cost in equal instalments during the operations of the project.

EVALUATION OF ABOVE-MENTIONED VGF INSTRUMENTS

As mentioned in the previous sections, four potential types of VGF instruments viz. Construction Cost Contribution, Operations Cost Contribution, Minimum Revenue Guarantee and Service Payment Mechanism have been evaluated. The parameters for the evaluation have been mentioned above. The following table evaluates the VGF instruments vis-à-vis the evaluation framework:

Government Support (VGF Instrument)	Complexity of Institutional set up	of Fund set commitment- Short Vs Long Term	Contingent liabilities	Degree of fiscal control
Construction Cost	Does not require an elaborate set up as it is a payment	Short to medium term fund commitment,	No contingent liabilities, as exact public	The total public sector capital contribution can

Government Support (VGF Instrument)	Complexity of Institutional set up	Fund commitment- Short Vs Long Term	Contingent liabilities	Degree of fiscal control
Contribution	during construction period	during the construction period, comparatively easier to manage	sector capital contribution would have been approved during the bidding process	be managed within stipulated fiscal limit
Operations Cost Contribution	Requires extensive set up to monitor operations of multiple projects and estimate appropriate operations cost of such projects	Medium to long term commitment, comparatively more difficult to manage	Liability is contingent on operational expenditure	Limited control on the extent of VGF support, difficulty in fiscal management
Minimum Revenue Guarantee	Requires extensive institutional set-up to monitor operations and revenues on a regular basis	Long term commitment, comparatively more difficult to manage	Liability is contingent on revenue generation and linked to the external factors not always in control of the project and the Government	Minimal control on the extent of VGF support, difficulty in fiscal management
Service Payments	Requires extensive institutional set up to manage the long term periodic support, to estimate exact level of Service Payment and long term fiscal	Long term commitment, requires long term budgetary resources and comparatively difficult to manage	No contingent liability, as the Service Payments would be pre determined.	The total funds disbursed can be managed within stipulated fiscal limit but with greater discipline

Government Support (VGF Instrument)	Complexity of Institutional set up	Fund set commitment- Short Vs Long Term	Contingent liabilities	Degree of fiscal control
	planning			

INFRASTRUCTURE CREDIT GUARANTEE FUND

There has also been many economies having or considering Guarantee funds to support PPPs. The most successful is Korea. Korea launched Infrastructure Credit Guarantee Fund (KICGF) to facilitate private participation in infrastructure in 1994. This fund will provide credit guarantee for PPP project finance to enhance the timely payment of debt service. Its guarantee products include:

- Guarantee for facility loans (during construction)
- Guarantee for working capital loans (during operation)
- Guarantee for bridge loans
- Guarantee for refinancing
- Guarantee for infrastructure bond

TAX INCENTIVES

- Exemption from acquisition and registration taxes on real estate for BOT projects
- 0% VAT on construction services
- Tax reduction for infrastructure bond

EQUITY PARTICIPATION

This involves government contributing part of the capital cost to a project at financial close or providing a capital contribution that is progressively drawn alongside private debt and equity to reduce service payments. In this model, grant is used to part finance directly the capital costs of an asset. Availability or user charges are reduced as a consequence.

These government contributions may be by way of equity contributed to the project vehicle appointed to undertake the infrastructure/PPP project or more likely, through a contribution to the project costs outside the project vehicle, thereby reducing the service payments and eliminating the need for agreement on issues such as ownership and termination arrangements.

This approach runs a greater risk than other options of compromising the risk allocation and presents a long-term impact on the government balance sheet.²⁷

6. CONTRACTUAL ISSUES

PPPs are defined to be “*long-term contractual arrangements between the public and private sectors in which the private sector has responsibility for significant aspects of the building and operation of an infrastructure for the delivery of public services*” [Iossa 2007 et al].

Therefore, the arrangements foresaid are treated as a special kind of contracts-PPP contract. While a civil contract is an oral or written agreement between the parties (the Government, state bodies and agencies, organizations, individuals...) for their civil rights and duties in accordance with the civil law, the PPP contract is a binding document that demonstrates cooperation between a public-sector party and private-sector party in procuring and delivering PPP projects which falling within micro-management aspects of public services.

There are different types of PPP contracts due to PPP arrangements remain different from one aspect to the others (for example, PPP project in the road sector differs from that in electronic sector), from one legal system to other legal systems (PPP project done in Viet Nam may vary from that done in Australia and United States) [Iossa 2007 et al].

PPP arrangements have their own distinctiveness and objectives. Nevertheless, they still share common characteristics. This part shall provide analysis of basic contractual issues in regarding establishment of PPP arrangement, including standard contract and critical issues to be considered when entering a PPP arrangement.

WHY THE CONTRACT NEEDED TO BE STANDARDIZED

PPP contracts exist under a number of forms such as Build-Operate-Transfer contract (BOT contract), Design-Build-Finance-Operate contract (DBFO contract), Management contract and Lease contract [Iossa 2007 et al]. Each model has its own features. Nevertheless, they share universal characteristics recognized as common standards of PPP arrangements.

It is undeniable that PPP contract design remains various subject to different PPP arrangements and purposes. In other words, a model contract fitting with all PPP arrangements does not exist in the real world. Nevertheless, a design of several standard PPP contracts is targeted for the following reasons:

First of all, similar to other civil and commercial transactions, PPP arrangement contain essential contractual elements, including capacity of the contracting parties, objectives of the contract, price and payment mechanism, rights and obligations of the contracting parties,

²⁷ Infrastructure Partnerships Australia, Financing Infrastructure in Global Finance Crisis, 2009

dispute settlement mechanism, and validity of the contract. Many economies have, therefore, introduced various models/samples for making contractual agreements in civil, investment, commercial activities and now PPP arrangements.

Another reason is that PPP contracts have their own characteristics including the “bundling of project phases” (such as design, building, operation and management and transfer)²⁸ of the infrastructure and delivering vital public services. Thus, PPP arrangements share similar “output specification approach” (the public-sector party identifies necessary requirements and standards of the service and provides incentives for innovation of the private-sector), which may cause greater risk and misspecifications for the public-sector party but can facilitate a mutual understanding of the main risks possibly encountered in a PPP project of the public and private sector parties.

Moreover, the duration of PPP contract is usually set down for a long-term.²⁹ Consequently, making such kind of contract draws some special attention apart from those of other civil or commercial contracts in order to prevent or reduce (i) an incidence of mistakes at the drafting stage of the contract costly for the contracting parties; and (ii) possibility of corruption resulted from the abuse of favourable contract terms given for the private-sector party.

Furthermore, a standard design can help the contracting parties to save time and money since it derives them on the scope and objectives of the contract, reduces the period and costs of negotiation, allocates the risks properly and reduces the likelihood disputes and output misspecification [DHV 2008]. Furthermore, the design a standardized PPP contract could improve the transparent governance and develop legal framework of the economy.

FORM AND STRUCTURE OF A PPP STANDARD CONTRACT

Most PPP contracts are in a written form. Unlike some civil contracts which can be made in the form of either oral or written agreements, most PPP contracts are given in written documents binding the contracting parties. For example, the BOT contract for power project, procurement contract and bidding contract are all in written documents.

The contract can be structured as follows: The first part is name of the contract. Name of the contract should be identified by the contracting parties and written clearly at the first page of the contract.

The second part is preamble of the contract. This section demonstrates the parties engaging in an agreement, purpose of the agreement, context and reference to legal empowerment of the authority to execute the agreement, objectives and a brief description of the project (detail scope of the project is usually mentioned in a schedule or annex attached to the agreement).

²⁸ *ibid*

²⁹ *ibid*

The third part is body of the contract. As the body of the contract contains essential issues of the contract agreement, it is generally divided into a number of sections/articles and each on a specific issue, or in several chapters (if more comprehensive issues) and each containing a number of sections/articles. There may be one or more annexes or schedules attached to the main text. These annexes or schedules provide more details on some specific matters, for example the technical and performance specifications of the project. This part is quite comprehensive and will be presented further in the next section of this paper.

The last part of the contract mentions the language, number of original copies of the agreement, date of effect, the date and place of agreement, the signers and other related matters.

BODY OF THE CONTRACT

Body of the contract agreement consists of some common key sections of the PPP contract, including but not limited to the following sections [UNESCAP 2007]:

Definitions and interpretations: This section provides descriptions and explanations of some technical or difficult terms and phrases used in the contract that require clear understanding, namely contractor, affected party, assessment date, accounting year, business day, concession, contractor, financial closure, good industry practice, minister, material breach, force majeure, terminal, disputes, and so forth.

Purpose of the contract: The purpose of the contract is should be stated clearly in the contract the contract so as to derive the contracting parties to go on track. It usually sets out the terms and conditions upon which the private –sector party agrees to carry out his investment, building, operation, management and/or transfer of a facility/infrastructure to the public-sector party with or without compensation at the specific time.

*Project Site*³⁰: This section specifies location of project site, rights, title and use of the project site, handover of the project site, possession/use and maintenance of the site, and applicable licenses or permits that the private-sector party needs to collect from related authorities, etc. The public partner's role in ensuring licenses and permits may also be included in this section. It may also mention whether the public partner would have any role in securing those licenses and permits.

*Design construction and maintenance of facility*³¹: This section deals with matters concerning preparation, review and approval of drawings and design, commencement and completion of project construction, early and late completion and consequences thereof, monitoring and supervising the construction, testing, operation and maintenance of the facility; temporary closure for repair and maintenance of the facility; management effect and access to facility by

³⁰ This section is mostly provided in the PPP contract relating infrastructure facility such as BOT, BT, DBFO.

³¹ This section is also provided in the PPP contract relating infrastructure facility such as Power project BOT.

other persons; material breach of operation and maintenance; performance measures and monitoring; insurance and so forth.

Rights and obligations of contracting parties: For In terms of private-sector party, this section points out his general rights and obligations, concessions and privileges in shareholding arrangement, financing and refinancing agreement, security, insurance proceeds, uninsurable risks and information disclosure. It may explain some other obligations concerning sectoral issues like interconnection to services provided by other operators, requirements of submitting reports to management agencies and so forth. For the public-sector party, the contract agreement may lay down provisions ruling his detailed rights and obligations such as concessions and authorization of activities granted to the private-sector partner, a tariff review commission, applicable government support and conditions of such support.

Obligations of other related parties: Other parties, namely independent Engineer/expert, independent auditor, insurer and escrow agent, who engage in the contract agreement to facilitate the contracting parties fulfil their duties and obligations. This section may specify the eligibility, requirements and procedure for appointment of these parties, general rules, applicable areas, payment and obligations of these parties.

Payments and financial issues: These are section provides important provisions regulating amount of payment, kind and period of payments, procedure, calculation and adjustment of the payment; VAT and other taxes; bonus and reduction in payment; sinking funds; termination of payment; supervision responsibility of the authority and expenses for this supervision; security and warranty; and insurance. .

Tariff, fees, and levy: This section mainly deals with type of tariff, fees, and levy; their collection and appropriation. It particularly describes rights and obligations of the parties and agencies relating to the implementation of taxation mechanism; structure and amount of tariff; exemption, favouritism and subsidization; tariff review, tariff adjustment and its expenditure and process. It also contains fees and levy, incorporation of fees and tariff, their accounting standards, collection and modification, appropriation, mechanism for payment and transfer, and so forth.

Scope and change of the scope of the contract: Scope of the contract is needed to be defined clearly so as to point out number of set of works done by contracting parties. Also, change of the scope, circumstances of change, permissible changes and the due procedure for such changes can be incorporated under the contract.

Issues concerning environment matters such as waste treatment and disposal: This section demands the party to execute its operation/investment in full compliance with the law and environmental protection requirements, particularly the Environment Impact Assessment Report has to point out types and sources of waste; methods of collection; transportation; treatment and final disposal; physical, chemical and biological characteristics of the wastes at

final disposal; and recycling of treated waste water. The details of technical standards may be attached as a separate annex or schedule of the contract agreement.

Representations and warranties: In this section, each party clearly represents and warrants to the other and related agencies about its legal incorporation/establishment, legal capacity and authority to conduct its own business; sign and implement the contract; notice of change obligations.

Change in law means any amendment, supplementation, cancellation, non-renewal, or new enactment of the law occurring after the date of signing the contract agreement. This provision specifies conditions of change, assessment of change in law subsequent, obligations and liability of the parties, compensation mechanism (if any).

Force majeure events: definition and types of force majeure events, including natural force majeure events, political events or Government events, are given in this section. This section also stipulates obligations of the parties when a force majeure event occurred, allocation of costs, compensation, termination of contract and payments.

Handover of project asset and/or facility: This section specifies time, conditions, requirements, preparations for transfer; transfer test procedure; liability of the parties when transfer the asset and/or facility.

Termination of contract: the contract can be terminated due to normal termination or event of default. In terms of normal termination, the parties may consider circumstances and conditions of termination; notice of termination; possibility of renewal, any transition arrangements or further agreements when a new operator takes over; termination payment; accounting compensation for not fully repaid assets or devalues assets. Regarding to early termination due to event of default, it must be define clearly the default caused by or directly derived from the private-sector party or the public-sector party or both of them so as to determine their obligations of compensation, termination procedure, termination payment, claim on assets.

Dispute resolution: This provision specifies scope of disputes, methods to be used, applicable laws, dispute resolution procedure, obligations and rights of disputing parties (further comments in the next part of this paper).

Miscellaneous: this section consists of a number of issues, namely, liability and indemnity, governing laws, sovereign immunity, waiver, amendment, non-enforcement, assignment, counterparts, confidentiality and notices.

Annexes or schedules are attached to the contract as an indispensable part of the main text. They provide descriptions of various items as referred to in the main text.

This part will analyze several noticeable issues regarding PPP contracts, including risk allocation, payment mechanism, governing law and dispute resolution. Other issues are also significant and noticeable but not falling within the scope of this paper.

RISK ALLOCATION

There is a fact that incidence of risks have existed in every PPP project. For example, a project to build a power facility may face risk of construction delay because of force majeure events, unpredictable geological conditions, environmental impact assessments, administrative procedure requirements and other issues before and during the construction. Event after the construction, the project is subject to the risk of unable to afford operation expenses because of low revenues and lack of invested funds [Iossa 2007 et al].

There are different kinds of risks namely planning risk, design risk, construction risk, operation risk, demand risk, finance risk, misspecifications of output requirement risk, risk of change in public needs, risk of change in law, residual value risk [Grimsey D. and M. Lewis 2002].

When making a PPP contract, the parties agree to share risks regarding the PPP project. Consequently, a mechanism on risk management must be regulated as specific as possible in the contract by means of rights and obligations of the parties. In this aspect, a PPP contract is a “risk-sharing arrangement” [DHV 2008] which distributes assumed risks between the public and private sector parties during implementation of a PPP project.

It is interesting to know that in many PPP projects, the public-sector is responsible for more risks than the private-sector, and thus a number of risks should be transferred from the public sector to the private sector and vice versa [Iossa 2007 et al]. By the contract, the public-sector party may retain several risks such as demand risk or risk of misspecifications of output requirements; nevertheless, other risks (for example, design and construction risk, financial risk, change-in-law risk and residual risk) usually negotiated to be carried on by the private-sector. It is suggested that the public-sector party should consider risk allocation in a manner that possibly contributes to a positive impact on encouraging the private investment.³² In general, risks are allocated to the private-sector party by means of contractual incentives, obligations and penalties in payment mechanism. The receiver uses his inventiveness and ability to satisfy the desired objectives of the public partner in accordance with the terms of the contract [DHV 2008].

The levels and categories of risk allocation vary from each type of PPP contract. For example, in the BOT contract, the private-sector is responsible for investment in building and operating infrastructure facility. After a period of operation, the facility would be handed over to the

³² Ibid

public in conformity with the terms and conditions set down in the contract. Thus, the financial risk is allocated to the private partner [Iossa 2007 et al].

By contrast, in the management contract, the private-sector party is paid by public-sector party for operating and managing state-own assets. The private-sector party faces the operation risk but not construction risk because the public sector partner is in charge of construction and financing for maintenance. The later party also faces the demand risk since he is unsure that whether the final service users will select the service [Delmon 2009]. Another example is a joint venture agreement known as a “traditional PPP contract”. In this agreement, both private and public sector parties mutually form a joint company for public service and share risks and profits. Nevertheless, the public partner may play double roles (as the company shareholder and regulator of the company’s sector) and gain greater participation and outcome of the project [Iossa 2007 et al]. Therefore, risk allocation is not similar because of different contractual incentives and responsibilities of the parties in every PPP contract.

One of important features concerning risk allocation is force majeure event. Similar to French law, Vietnamese civil code defines “force majeure” event as an “external, unforeseeable, unavoidable event that makes the affected party implementation impossible”.³³ Although definitions of “force majeure” is diverse under laws of the host economy or willingness of contracting parties, this concept is generally understood as any risky event beyond the reasonable control of the affected party, possibly cause a “materially adverse effect” on the party’s ability to perform its obligations in accordance with the contract provision [Delmon 2009]. In this light, “force majeure” event consists of 3 main elements: (i) actually prevents (in whole or in part) or delays the affected party’s performance of its obligations written in the contract; (2) not within the reasonable control of the affected party; (3) could not have been avoided by this party using reasonable care.

A list of force majeure events and exclusion conditions are often specified in the contract by the parties. Force majeure events are generally divided into natural events and political events. Natural events may include severe weather conditions like flood, drought, storm, lightning, typhoon; adverse nature phenomena like volcanic eruption, mudslide, landslip and tidal waves; fire; epidemic and plague.³⁴ Political events may comprise government events like acts of war, invasion, terrorism, riot, sabotage, embargo; and government failing to perform material obligations as its commitment.³⁵

In order to avoid potential uncertainties leading to disputes, the contracting parties have to discuss the way to deal with the risk of force majeure events. A specific regime for force majeure treatment must be clearly stated under the contract. Accordingly, the parties to

³³ Article 161 of the Civil Code of Vietnam, also see Delmon 2009.

³⁴ Ibid

³⁵ Ibid, also see BOT contract for Mong Duong 2 Power Project, 2010.

contract may agree to let the afflicted partner free from project duties or penalties for failure to accomplish the contractual obligations due to force majeure events, terminate or continue the project with provisions on compensation for incurred damages. In some circumstances, the project enterprise is required to share a portion or a whole of the risk.³⁶ In a limited number of circumstances, the public sector can bear risk if he would be able to manage any situations regarding the risks or is in charge of dealing with the risk occurred [Delmon 2009]. However, buying insurance is one of the best solutions to help the party to re-allocate risk. These issues are falling within discretion of the contracting parties though the laws already provide legal mechanisms for treatment of force majeure events.³⁷

PAYMENT MECHANISM

Payment mechanism is an essential component in every PPP contract since it has great effect to the finance structure of the project. As mentioned above, the public-sector party can distribute some incentives and assumed risks (i.e. demand risk and finance risk) to the private-sector party via payment mechanism. Therefore, it is necessary to specify and detail the payment including any change and adjustment in the contract agreement. This will help the parties, especially the private-sector to manage risks when perform the PPP project.

Since the PPP contract has an output specification approach, its payment mechanism is an “incentive-oriented” payment mechanism [Iossa 2007 et al]. This means that payment mechanism provided in the PPP contract depends mostly on the project’s output (when asset/service being provided) rather than on the input (costs and processes of asset/service). The “results-based” payment mechanism aims to reach the desired requirements of the public-sector party while allow the private-sector party to freely decide a suitable process and equipment to perform the project and even penalty payment for failure. Consequently, the mechanism is also called a mechanism of “carrots and sticks”.³⁸

There are different methods of payment have been taken by the contracting parties in the practice of PPP projects. In many PPP projects, the public-sector party undertakes unitary payments to the private-sector partner so as to covers issues like availability, performance and service usage. By this way, the private-sector party can produce innovative solutions to satisfy the requirements of the public-sector party. However, amounts of unitary payments may be deducted as a penalty for default, unavailability or unfulfilled performance of the private-sector party. For example, in a PPP project to build a highway, if a road section is unfulfilled,

³⁶ Ibid

³⁷ Article 166 of the Civil Code of Vietnam stipulates that the owner has to bear the risk when the asset is damaged or destroyed resulted from force majeure events, except having another agreement or different provisions of the law. Section 19.10 “termination payments as a result of force majeure event” of the BOT contract for Mong Duong 2 Power Project said that any Notice of Termination shall be effective immediately and the parties shall be excused and relieved of all obligations and liabilities under the contract, except for payment of amounts due or accrued prior the date of Notice of Termination.

³⁸ Ibid.

the public sector would deduct money from unitary charge paid to the private-sector until that road is complete and accepted. Thus, this payment scheme lay down both “performance measurement” and “penalty mechanisms” in the PPP contract in order to make sure that specific outputs provided by the private-sector party are what the public-sector partner wants to purchase [DHV 2008].

In some payment schemes, the private-sector party is entitled to receive revenues directly from charges on the service users. This payment mechanism lay on user charges. Through this payment mechanism, the demand risk is transferred from the public sector to the private-sector [Iossa 2007 et al] since the later party does not sure how many users would probably select the service/facility and thus uncertain revenues. Bearing the demand risk, the private-sector party may have motivation to improve its performance so as to attract more service usage and increase revenues, but this may impose a higher charge for users and increase cost of capital. Consequently, duration of the contract may have to be extended. This explains why risk transfer and user charge-based payment mechanism can provide more incentives but come at a cost.³⁹

In some other PPP contract, payment mechanism consists of both unitary payment and user charges. In this scheme, the public-sector party pays the private partner instead of service users. The public-sector party imposes tariffs on users in order to get associated revenues. After that, the public-sector party renders a unitary payment to the private partner basing on the actual usage level. This method may reduce the impact of demand risk transfer because it uses bands at low or high usage levels to determine the payment and bound the risk.⁴⁰ Moreover, this payment scheme can encourage the private-sector party innovations concerning service availability and quality affects the usage levels. Nevertheless, this payment scheme may result to financial risks for the public-sector party as uncertain payments may lead to difficulties in budget planning.⁴¹

There are still some other methods of payment, such as performance payment and availability payment [see Iossa 2007 et al]. Admittedly, these payment mechanisms contain several typical characteristics; but in general, the nature of those payment mechanisms is not far different from that of the above payment mechanisms. On the one hand, they all support discretion of the private-sector party deciding how to perform a PPP project so as to reach standard requirements of the public-sector party. On the other hand, they lay down set of penalty points for poor or failure performance of the private-sector party at any time of the PPP project. Therefore, the contracting parties have to take a careful consideration when setting specific provisions ruling payment mechanisms in the PPP contract.

³⁹ Ibid

⁴⁰ Ibid

⁴¹ Ibid

GOVERNING LAW

Since the issue of governing law is so important that it should be clearly defined in the contract in order to avoid incidence of dispute. The fact shows that a number of disputes concerning governing law are not minor issue that costs money and time of the parties.

From international perspective of investment treaties, governing laws referenced in the circumstance of dispute settlement is chosen by the parties or tribunals which usually include the law of the respondent and principles of customary international law including the rules on the conflict of laws.⁴²

In practice, the choice of governing law varies from different arrangements depending on contracting party's consents. Usually parties can negotiate to include host economy's legislations governing PPP projects and other rules and principles specified in the relevant investment agreements.⁴³ However, foreign investors would propose the law of the third economy (like English law or French Law) to be included in the contract as governing laws because the third economy's advance legal system is usually more "maturity", "certainty" and "enforced" for their rights and also since these laws are more familiar to foreign lenders and perceived as giving stronger protection to the lenders in term of dispute settlements.⁴⁴ This can be seen in several recent PPP contracts entered by government authorities in developing economies in which investors are preferred to reference to foreign laws like English law, French law, Japanese law or Hong Kong law.

DISPUTE RESOLUTION

Provision on dispute resolution is an important sector of every PPP contract. It is undeniable that disputes may arise at any time during the PPP project performance as duration of the PPP project is quite long⁴⁵ while a contract is incomplete. Any misunderstanding of interpretation or any difference on technical issues of the contract would possibly results to a dispute between the parties. Furthermore, status and capacity of the contracting parties are different between the public-sector party and the private-sector party. It may be very risky and meaningless for the private-sector investor to participate in a PPP project and sing a PPP contract without any provision formulating a dispute resolution mechanism between the contracting parties, especially when one party is more powerful and have more advantages than the other. When a contract specifies a proper dispute resolution procedure it would made the contracting parties more confident to enter into contract agreements. Accordingly, provision on dispute resolution is one of compulsory and indispensable provisions of every

⁴² Article 20, 2004 Model BIT of the United State of America.

⁴³ European Investment Bank, FEMIP, *Study on PPP Legal & Financial Frameworks in the Mediterranean Partner Country*

⁴⁴ Ibid

⁴⁵ For example, about 5 years for a high way project; 10 year for a BT modern building infrastructure; 20-30 years for a BOT power project.

PPP contract, which can contribute to the success of the long-term contractual relationships of most PPP projects [Iossa 2007].

In general, there are two essential factors which draw considerable attention of the parties, especially the potential private-sector party, regarding dispute settlement mechanism. The first factor is the legal system of a host economy and the second factor is the terms of the contract managing disputes given by the parties [Valentine, 2008]. While the former provides various substantive laws and procedures of the economy (such as company law, commercial law, civil law, contract law, competition law, investment law) as well as common used methods for resolving dispute (such as negotiation, conciliation, mediation, independent expert, arbitration, court), the latter identifies detailed methods and procedures for solving any dispute arising out or relating to the contract of the parties in accordance with the economy legal system or international treaties.

When designing contract agreements, the parties have an opportunity to choose suitable alternative dispute resolutions, namely negotiation, conciliation, mediation, independent expert and arbitration, and can avoid court procedure. Unlike other contracts, the PPP contract usually demands a high level of sector-specific knowledge [Iossa 2007]. Therefore, the expert plays an important role in assessing financial and technical issues. In this circumstance, the third party (conciliator or arbitrator) may be chosen amongst experts who is expertise in the field and his decision would be more persuasive to the disputing parties.

In PPP contract, arbitration is often provided as a final method for resolving dispute. After unsuccessful discussions in good faith, the parties may bring the disputed issue to the expert for professional decision. If the dispute cannot be settled by mutual discussion, it shall be finally settled by arbitration and arbitral award is final and binding to the disputing parties.

There are many issues should be discussed in every arbitration agreement, namely scope and place of arbitration, establishment and procedure of the arbitral tribunal, law applicable to the arbitration agreement, language of arbitration. It is noticeable that the scope of arbitration prescribes jurisdiction of the tribunal. The choice of the place of arbitration determines the law applicable to arbitration, the supervisory jurisdiction of the court and the enforcement of the award.⁴⁶

It may be often that the law governing arbitration agreement and the law governing the substantive contract are the same. Yet this is not always so because an arbitration agreement may separate from the substantive contract, and thus it possibly has a different proper law.⁴⁷ The fact shows that, many PPP contracts have designed an arbitration clause with the

⁴⁶ Alan Redfern and Martin Hunter (eds), *Law and Practice of International Commercial Arbitration* (2004)

⁴⁷ Michael Pryles (ed), *Dispute resolution in Asia*, (2006)

applicable law is the law of other economy⁴⁸ or an international convention like ICSID Convention and the ICSID Additional Facility Rules, and United Nations Commission on International Trade Law Rule of Arbitration (UNCITRAL Arbitration Rules), provided that applicable law is chosen by mutual consent of the contracting parties.

During the procurement stage, a typical approach used by many APEC member economies to assess the different bids is to compare value for money outcomes against a cost benchmark established using a public sector comparator model. This was described earlier at III/2c. The eventual choice of bid will take the PSC into account in most cases. Furthermore, as will be described further below, at the procurement stage when the bids are being assessed is when much of the performance management system including KPIs is built into the final contract with the private party. There are issues that can arise with respect to the PSC measurement methodology which influence the bid assessment process but it is not intended to deal with that here. The PSC sets the cost and value for money benchmark and guides bid choice but the PMS whilst it begins at the bid stage has more of an influence on PPP contract implementation and service performance and that is the main subject of this section.

PPP contracts are complex documents that set out the relationship between the various stakeholders in a particular PPP project and sets out in quite some detail, what is expected of the private sector contractor by the public sector contract manager. The PPP contract manages this relationship throughout the other main stages of the project-the construction stage, the operational or service delivery stage and then finally the hand back stage. To be clear, performance management and monitoring is an important subset of overall contract management, and KPIs are an important aspect of the service delivery stage of the PPP project.

The success or otherwise of a PPP is not just a function of how well it met service delivery KPIs at that stage of the project. Of course it is the stage when the service users get to try the new service and are charged for it, so naturally it is an important component of any judgment about success or failure. Other stages of the project-especially the construction stage where meeting critical time and cost milestones are concerned-are equally as important in delivering the expected value for money in a PPP. To amplify this point further, specific aspects of the PMS (including KPIs) are negotiated and agreed at the procurement stage so it is entirely possible that poorly conceived and drafted KPIs can be included that were incapable of ever being met.

⁴⁸ For example, article 23.3 BOT Mong Duong said if the dispute cannot be settled by mutual discussion or if any disputing Party elects to enforce its rights to arbitration, the dispute shall be finally settled by arbitration in Hong Kong under Hong Kong International Arbitration Centre Administered Arbitration Rules.

Managing a PPP contract effectively is a whole of project lifecycle matter. An excellent example of effective contract management-and often held up as a model for others-is the approach taken by the Australian state of Victoria through its dedicated PPP unit, Partnerships Victoria (Partnerships, Victoria, 2003). At its core is the need to manage and monitor all project risks so as to achieve the project objectives and value for money outcomes. It starts with the risks allocated in the PPP contract and builds on that to develop management strategies to assume, control, mitigate or remove these risks and any others identified after the contract has been agreed.

The PMS is one of a number of key elements of effective contract management along with:

1. **Planning, information collection and analysis**-starts in the procurement stage and involves ongoing iterative processes. New information required is determined by regular reviews of plans and regular analysis is used to refine the overall contract management strategy.
2. **Effective relationship management** is aimed at creating a long-term mutually beneficial relationship that anticipates risks arising before they occur, deals with them effectively and associated disputes that may come up.
3. **Appropriate governance, probity and compliance practices** within the government party and in its dealings with the private party and any other stakeholders.
4. **Effective knowledge and information management strategy** to ensure project information can be easily found and accessed thereby enabling the government to meet its obligations concerning information retention, disclosure and protection.
5. **Effective change management** to manage smoothly change events without creating unnecessary risk or unintended acceptance of risk by government.
6. **Effective contingency planning** to ensure the government can respond appropriately to unexpected events and control the impact on service delivery value for money outcomes.
7. **Ongoing review** of contract management processes so they can be adapted throughout the PPP contract lifecycle.

Three essential steps lie at the heart of any PMS framework.

Step 1 requires the government party to understand the private party's business at both a strategic (outcomes) and project level (outputs). Each project has different strategic outcomes and project outputs. Cash and the impact of risks are highly project-specific. Understanding the underlying business health of the private party requires the contract manager to know about its cash flows and revenue stream drivers. For instance a toll road relies on a user charge revenue stream which is different to a government accommodation project which relies on an availability payments mechanism. The risks transferred are different-user pays

systems transfer demand or patronage risk to the private party while availability payments transfers performance risk and not demand risk.

Step 2 is based on an analysis of the underlying quality of the project measured with reference to:

- the financial health of the project business;
- management quality
- service performance KPIs; and
- the government's relationship with the private party.

The precise indicators of a business' financial health will vary from project to project but will be based on the financial position (including debt/equity ratio) and organizational structure. On management quality the contract manager will be looking for weaknesses or trends in the quality of the management and operating staff of the private party. It will not be hard data-it will be non-quantifiable information about skill levels and training of key personnel.

Monitoring service performance of the project requires the Contract Manager to regularly review service quality against the KPIs and output specifications in the contract. Service performance measures set during the procurement stage should be realistic and achievable. The table below is taken from Partnership Victoria's Contract Management Guide and outlines the key performance issues, tools and processes used in assessing performance against KPIs.

Table 6.1 Partnership Victoria's KPIs Measurement Framework for PPP Service Performance

Issues to be considered	Tools or processes
<p>Existing KPIs for similar projects can be used as a basis in forming KPIs but each project is sufficiently different to warrant further project-specific refinement.</p> <p>A starting point in developing KPIs is to assess what level of service (if any) existed previously and what is achievable. What the contractor thinks can be achieved and how performance can be practically measured may be very different from existing practices.</p> <p>The KPIs need to be right at the point of contract signing. However, as the project progresses and early in the service delivery stage, there should be sufficient flexibility in the contract to amend and review contract KPIs.</p>	<p>KPI Template: Standard approach to measuring and recording KPIs on a project. (See Note 1.)</p> <p>SMART: Good performance targets should be Specific, Measurable, Achievable, Relevant and Timed. (See Note 2.)</p> <p>Regular payment reports: Discussed in detail later in this appendix</p> <p>Physical measurement: The measurement of quantitative elements within individual specification standards</p> <p>Inspection: Physical inspections of operational activities to determine the quality of performance of the service</p> <p>Logged failure/Rectification time: That is, the time from when government makes a request to the time when the private party attends the incident</p> <p>User feedback: Complaints and/or service user interviews</p> <p>Periodic review and audit: Combination of spot check reviews of performance and regular audits of systems</p> <p>Exception reporting: May be appropriate, however there is also a need to identify whether KPIs are being missed due to poor performance or whether it is because the KPIs themselves are poorly defined. Also, if the exception to the KPI is important, then it should be included as a KPI.</p>

Note 1: An example of a standard KPI template is contained in Template G as an illustration of the type of information that may be required for performance monitoring.

Note 2: SMART performance targets are: **Specific** – clear, unambiguous and easy to understand by those who are required to achieve them; **Measurable** – set a target for success that can be gauged by referring to a specific measure or measures; **Achievable** – express specific aims that can realistically be achieved, bearing in mind that this may be a function of the level of performance that government is willing to pay for; **Relevant** – to those personnel who will be required to meet the target. They must have enough control over their work to be able to meet their targets or motivation may suffer; **Timed** – there should be a set timescale for achieving a target. Open-ended targets may not encourage focused effort on improving performance.

KPIs need to be directly relevant to the outcomes and outputs being sought from the service. As payment and management decisions are made based on the KPIs, they need to be useful, accurate and reliable and worth the effort required to measure it. KPIs need to be balanced at

all levels and should not be set to result in unintended incentives. They should be ready for change if necessary. Table 6.2 is the template used by Partnerships Victoria for recording KPIs.

Table 6.2: Partnerships Victoria-Template for recording KPIs on PPP project

KPI Template	
Service	Descriptor of the service category, e.g. Facility maintenance
Component	Detailed description of the component of the service category including cross-reference to the output specifications
SMART KPI	Description of the KPI in terms of being Simple, Measurable, Achievable, Relevant and Timed
KPI weight	Weighting of KPI (if applicable – depends on the payment mechanism)
KPI priority	Priority level of KPI (if applicable – depends on the payment mechanism)
Incident measure	What is actually being measured?
Performance bands/Points (depends on the payment mechanism)	
Bands/Points	Incidents
No penalty	Detailed description of how the KPI interrelates with the payment mechanism
A	
B	
C	
D	

Step 3 involves determining the project reporting requirements including both hard data and soft data with all sources of this data identified. This is carried out early in the procurement process to make sure they are included in the draft project contract provided to bidders. Data is monitored on a daily basis sometimes for emerging trends and to assess whether services are being delivered to the required standards (assessed against KPIs) and if any remedial action needs to be taken by the private party when the performance standards are not met. There is an obligation on the private party to maintain adequate performance monitoring, quality management and management information systems and the Contract Manager audits these systems by receiving planned performance reports and undertaking random spot checks to ensure that performance is being measured and reported reliably, accurately and comprehensively. The reports should be in a form that enables easy analysis by the Contract Director and contain only relevant information.

The Partnerships Victoria approach is detailed and both party's roles and accountabilities are set down in the contract wherever possible. The KPIs used in assessing service delivery and performance will vary depending on the type of service being delivered.

It may be useful to illustrate how KPIs become more specific in the PPP contract by an illustrative example, in this case, **a typical toll road PPP**. This can be represented in the as follows:

Toll road KPIs by Public Sector lane availability	Toll road KPIs by Private sector under O&M contract with sub-contractor
<ul style="list-style-type: none"> • incident management • customer service • reporting requirements • community relations • air quality • water quality • aesthetics 	<ul style="list-style-type: none"> • pass through of relevant PD KPIs • revenue collection • tolling system performance • asset maintenance standards • OH&S compliance • rectification periods

- Benchmark performance thresholds for specific assessment periods
- KPI demerit points applied for non-conformance
- Abatement regime (penalties) applied where demerit points exceed certain levels
- Security through performance guarantees, security bonds and possible termination
- Liability limits set for specific periods and whole of contract
- Risks imposed by KPI tests priced into tender

Another KPI example below is typical for a social infrastructure project such as a school or hospital PPP project:

- Quality/Performance failures:
 - rectification periods
 - cleaning
 - reporting
 - response times
 - abatement regime with penalties depending on severity of breach
 - ratchet deduction for repeated failures
- Unavailability deductions:
 - areas of facility not fit for purpose, OH&S issues, building services not working

- deductions based on rent applicable for the area and duration of unavailability
- Security through performance guarantees, security bonds and possible termination
- Liability limits set for specific periods and whole of contract
- Abatement risk priced into tender

There have been a number of studies done-mainly in the transport sector-about the effectiveness of KPIs to PPP implementation. Two that could be consulted were undertaken by the US Federal Highway Administration (2009 and 2011). The 2009 report found that effective PPP contract management is vital to maintaining the public sector's risk posture and to sustaining a good working relationship with the PPP contractor. In all 10 PPPs were examined in 5 economies and they all used KPIs or performance measures in their PPP contracts to assess service along with incentives and disincentives to motivate contractor performance. There was detailed analysis of the KPIs used and their effectiveness.

The 2011 report was a detailed follow up but focused on some different projects and more on the KPIs. This report provided a state-of-the-practice description of domestic and international practices for KPIs in PPPs. The report was based on a comprehensive literature review and eight case studies from Australia, British Columbia, the United Kingdom, and the United States. The report identifies how government-developed performance measures reflecting societal goals such as road congestion management or environmental impact are translated through KPIs and included in project documents for designing, constructing, operating, and maintaining transportation facilities. The report shows that it is possible to align projects with these higher goals. The findings are applicable to agencies that wish to align overarching organizational and societal performance measures through KPIs not only to PPP projects, but also to conventionally bid projects.

Incorporating appropriate KPIs into PPP contracts is vital and is primarily about optimizing value for all parties. Public sector benchmarks through the whole project lifecycle and embedded in their PMS relate to the original business case (the PSC guides the bid choice) and include time, quality cost and probity. The PSC is used to assess value for money in the bids but is not without difficulties especially in arriving at cost estimates for design and construction and operations and maintenance. There are NPV discount rates issues plus problems determining long term escalation rates. Valuing risk is notoriously difficult in PSC calculations.

Assessing the success or otherwise of a PPP contract is not just about meeting a narrow set of KPIs on service quality-it is much more about meeting the sponsor's value proposition optimized across all project stages through PMS benchmarking and associated KPIs. This includes design and construction stage value management and cost benchmarking, rigorous completion tests, a penalty/reward system for late/early completion, operations and maintenance involved closely with design to maximize value, KPIs including abatements for

non conformance to ensure performance of obligations and risk related to KPIs priced into tenders.

V. RECOMMENDATIONS FOR APEC ACTIONS

Infrastructure is crucial for APEC's developing member economies in generating growth, alleviating poverty and increasing international competitiveness. The current and future infrastructure investment needs of both developing and developed member economies far outstrips available public sector resources (cash flow financing or enhanced government borrowing) even with the contribution from ODA. Promoting further involvement of the private sector in infrastructure development seems the logical way forward for all APEC economies.

In the current context of economic downturn and financial crisis, a substantial portion of the fiscal stimulus plans in both developed and developing economies is prioritizing infrastructure projects, given their major multiplier effects on the development of other economic sectors. Examining the correctness and efficiency of these stimulus plans for infrastructure development in developing economies seems timely.

The PPP model, for reasons covered in detail in this study, offers some significant advantages over traditional public procurement in terms of efficiency, service quality and value for money. For at least two decades PPPs have been used and promoted successfully by many APEC member economies with well-established enabling environments. Still, it must not be taken for granted that just because APEC member economies have experience with PPPs that they have an adequate infrastructure investment or PPP policy in place. The collective experience exists within APEC to address the key objectives of this study—to share the optimal practices for a competitive infrastructure investment climate, to identify and then eliminate key impediments to improving private sector investment in infrastructure and to provide developing member economies especially with support to promote and strengthen PPPs as a means for addressing the growing infrastructure gap.

This study set out to identify optimal practices for competitive infrastructure investment and is the first output of a two stage project. The study will inform a forthcoming APEC seminar comprising experts in the infrastructure investment community from government, business and academia that might further inform the possible development of principles for APEC's developing member economies to fill the current infrastructure gap.

APEC's focus on infrastructure policy issues is certainly not new and the scope of the effort takes in many committees and groups. It is important therefore that these efforts are not duplicated or wasted. Efforts must be coordinated and address priority issues. **APEC needs to carry out a stock take of analytical work it has done so far infrastructure policy, what that collective wisdom is telling its members still needs to be done and then decide on how and in what order that work should be undertaken.**

Many APEC economies experienced the difficulty of fiscal deficits and increasing public debt burdens into the mid 1990s, and most embraced the need to obtain private capital for two

purposes. First, they decided to sell off previously poorly-performing state-owned brown field assets in infrastructure especially in the energy and transport sectors. For many this was their first taste of private sector investment (including FDI) in the operation of infrastructure services. Second, the promise of private finance was alluring, especially for large new infrastructure projects. During the last 10 years or so in particular, economies increasingly came to realise that PPPs could be an instrument to improve value for money outcomes in infrastructure projects.

The financial market environment in 2011 including the deteriorating fiscal positions in many APEC developed economies has certainly complicated the challenges in filling the infrastructure gap of APEC's member economies in the APEC region. In the short term at least, what this means is that the gap between demand and supply of infrastructure in both developed and developing member economies will continue to grow because of heightened uncertainty in equity and capital markets generally, fiscal consolidation by economies and continuing tight bank lending conditions affecting private sector infrastructure investment.

As a result, APEC member policymakers will need more focus on:

- **identifying and mitigating investment risks** and developing more innovative, lower risk financing mechanisms for increased private sector participation in infrastructure investment including:
 - more credit guarantee, viability gap funding and where necessary direct loans;
 - a better sharing of the attendant refinancing risk;
 - government's replacing the previous role of the monoline insurers and underwriting a sufficient proportion of the project financing to lower the cost of raising capital to that of investment grade.
- **broadening the financial base** through a mix of improvements to local currency bond markets in APEC's developing member economies. An integrated, innovative and efficient capital market is essential for free movement of capital across Asia for infrastructure development. Development of bond markets, particularly local currency bond markets, is one of the ways to reduce foreign currency risks and minimize maturity mismatches. It also reduces the reliance on bank intermediation diversifying risk in the market. Finally, if bond markets are more efficient at channelling funds from savers to investors then this will lower the cost of capital to the real sector thereby allowing the economy to grow faster.
- **a more strategic approach to planning** including the establishment of separate, regional infrastructure investment funds aimed at large, long term infrastructure development.
- **continuing to implement "soft infrastructure"** trade and investment facilitation measures (TFAP and IFAP II) such as customs modernization, regional logistics and connectivity enhancement, streamlined business regulation as a complement to improvements in the physical infrastructure.

Turning now to the promotion of PPPs in particular, it is important to stress two things PPPs are not. First they are not an additional source of previously untapped finance because as we noted earlier privatisation had been a well-worn policy path. Second, PPPs are not a panacea or cure-all for the infrastructure deficit problem. They are complex and hard to implement. Successful implementation requires significantly strong governance capacity and legal framework and policy clarity something that clearly does not exist in all APEC member economies. There is still a lack of clarity about the definition of public-private partnerships as well as the relationships between affordability, budgetary limits and access to private finance. This study will try and provide clarity in these areas.

Promoting private capital in infrastructure and PPPs in particular raises a number of political, social and economic issues. The first question is whether there is social consensus about acceptable ways of delivering certain services often considered to be "public goods". To what extent is the notion of the "partnerships" publically and socially acceptable? This is a key issue and points the way to one essential ingredient for promoting PPPs-high level political support. PPPs involve policy reform in the market for the infrastructure services being provided. High level political support for PPPs is essential for helping overcome community and vested interest opposition to reform and to convince them that PPPs have a valuable role to play as a mode of infrastructure service delivery. Political commitment at a high level is also crucial for reassuring private actors that commitment remains over the long run and that political risks will be minimised. **APEC member economies therefore must individually and collectively continue to reaffirm their high level political commitment to microeconomic reform and to promoting PPPs as a viable policy option for infrastructure development.**

Relatively inefficient public services in a given economy and the unavailability of domestic capital will likely spur the introduction of PPPs as a mode of infrastructure service delivery. This will raise economic questions including contract management and risk allocation, and how to maximise value for money. A number of tests of PPPs are involved, relating to affordability, risk sharing and competition as well as providing a benchmark with a public sector comparator. Faced with fixed ratios of acceptable public sector indebtedness, economies may neglect ensuring value for money outcomes instead seeing PPPs as affordable and a way to shift part of their debt off their books. **APEC member economies should, in judging whether or not a project is affordable, base their funding decision on a comparative assessment of affordability for both traditional procurement and PPPs over the life of the project and not against the immediate budget limits or medium term expenditure frameworks.**

Engaging in a PPP process requires member economies to ensure an enabling environment. This has many facets all of which will be discussed further below. **A major task for member economies is to define clear legal and policy frameworks and to ensure that the appropriate capacity exists within the government to initiate, manage and implement**

PPPs. Ensuring an enabling environment for PPPs requires the public sector at all levels of government to be a credible partner for the private sector with appropriate regulatory and oversight mechanisms. PPPs are often managed by decentralised authorities or local governments who must deal with major private sector actors so credibility can be an issue.

All APEC member economies therefore should as a matter of priority, formulate a clear PPP policy framework. It will need two parts-one common to all PPPs setting out the government's key policy objectives, core principles and general guidelines and a second part setting out sectoral issues. The generic part of the framework should contain a clear statement of the economy's position on private sector friendly policies, good governance principles in decision making such as transparency, accountability and stakeholder consultation, market and sector structure/competition, types of PPPs, types of government support available (grants, subsidies, loans, guarantees, land appropriation, compensation for termination etc), how it treats unsolicited proposals and set out the authority of local government. This should ensure stability, predictability and give a significant guarantee for investors and enterprise communities in infrastructure investment.

Is elucidating a PPP policy framework by itself sufficient for successful PPP contract implementation where the objectives of both the member economy and the private sector align? An additional form of risk mitigation to improve the chances of success of the PPP is to make the PPP contract as comprehensive as possible. As long term projects can run for 25 to 30 years, it is both impossible and impractical to cover all possible contingencies. The reality therefore is incomplete contracts making a robust legal framework essential should regulatory policy and contract arrangements prove inadequate to address PPP requirements resulting in conflicts between parties. **APEC member economies therefore should establish an appropriate and effective legal framework to complement the policy framework for PPPs.**

All APEC member economies should also ensure their regulatory and legislative frameworks are up-to-date, clear, complete and integrated across sectors and ready to handle the reality of PPP contracts. Presently member economies have market and sector structure deficiencies including a lack of relevant market regulation which can lead to monopoly and sector inefficiencies. These can be major deterrents to PPPs in infrastructure. A good example would be the transport industry where barriers are common in the form of public monopolies and distortions in the pricing of competing transport modes. The perception of these services as public goods has made the tasks of government more crucial as the issues of equity and efficiencies have to be dealt simultaneously in a PPP policy framework. Price setting or any price revision later on can be a sensitive issue for many PPP projects. The regulator must not allow the private sector to earn excessive profits meaning great care is needed to set the contracted price at a level that allows cost recovery plus a fair return on their investment. Member economies need to address these deterrents if they wish to encourage PPPs. Clarity in the regulatory framework will also help to minimize corruption.

All APEC member economies should draw up clear rules and guidelines setting out the administrative process by which PPPs are considered and implemented. This is to ensure consistent, streamlined administration by the bureaucracy which will reduce uncertainties at different stages of project development and approval. Optimal practices in the PPP process needs to address four key issues - value for money, risk transfer, competition and contestability and transparency.

Member economies should adopt achieving value for money outcomes as the core objective in their PPP policies. A PPP project yields higher value for money compared to traditional procurement or in-house production if it reduces lifecycle costs, transfers risks more optimally, is implemented more quickly, results in higher service quality and generates additional revenue. An **optimum transfer or sharing of risk** implies that risk is allocated to the party that is the best suited to carry it, i.e. the party that can deal with the risk at least cost, be it the government or the private partner.

Risk transfer ensures that the private partner has an incentive to deliver value for money, but a prerequisite for the effective transfer of risk is **competition both in the bidding process and in the market for the infrastructure services upon project completion.** To ensure potential private partners aim for value for money, **APEC member economies should adopt the use of a public sector comparator (PSC) in the bidding process to measure value for money outcomes of all the bids.** Such an approach has proven to be successful in many economies.

Assessing the success or otherwise of a PPP contract is not just about meeting a narrow set of KPIs on service quality-it is much more about meeting the sponsor's value proposition optimised across all project stages through PMS benchmarking and associated KPIs. This includes design and construction stage value management and cost benchmarking, rigorous completion tests, a penalty/reward system for late/early completion, operations and maintenance involved closely with design to maximise value, KPIs including abatements for non conformance to ensure performance of obligations and risk related to KPIs priced into tenders. **APEC member economies should measure value for money outcomes by means of an ongoing performance management system with key performance indicators or KPIs to measure service quality performance.** Incorporating appropriate KPIs into PPP contracts is vital and is primarily about optimising value for all parties.

Finally the PPP process should be founded on adequate disclosure of information to enable public scrutiny of budget information including what the member economy will pay and full details of any guarantees and contingent liabilities. Where a government price subsidy is given for broader social or political reasons the community needs to be properly informed else there would likely develop wrong perceptions about the actions of the private sector. **Member economies should also publish details of the service quality KPIs included in PPP contracts and performance levels achieved.**

The legal context within which PPPs operate may comprise up to four aspects-supranational requirements (for example, ASEAN or the World Trade Organisation); the national legislation; the laws and regulations of local/regional authorities; and the contract specific to the PPP project. Quality regulation at all levels, but particularly at the national and the local levels, is a prerequisite to ensure a successful PPP. The multilevel governance aspects also require an adequate interface between local authorities and national governments. This issue can be significant in some federal economies where, in specific cases, different layers of regulations may be superimposed. The KPMG survey (KPMG, 2010b) noted the inconsistent application of best practices across state and local government jurisdictions and across all projects within a jurisdiction in Australia.

This inconsistency in PPP policy application is one reason, but there are many others, for recommending **that APEC member economies should set up a national body responsible for designing and implementing a national infrastructure strategy or plan which has as a priority remit the need to improve the coordination of public and private investment in infrastructure.** Other reasons for adopting a national infrastructure plan include:

- **establishing within member economies pipelines of suitable infrastructure projects for private sector investment.** The lack of a national pipeline of projects is a common criticism of private sector participants in many APEC member economies and an area with much room for improvement. This compromises the public prominence and knowledge of member economy PPP markets creating uncertainty as to whether entry into a market would provide an adequate return on the necessary investment to set up a bid team with the required skill set. For existing players in PPP markets they would be unwilling to expand teams with specialist skills and knowledge for fear of not finding sufficient future opportunities to repay such costs.
- to address the **present tax revenue/infrastructure cost mismatch** amplified in the Canadian example whereby the 2009 share of taxes collected with federal, provincial/territorial and municipal governments are 50 per cent, 42 per cent and 8 per cent, respectively whereas the federal, provincial/territorial and municipal governments respective shares of infrastructure spending costs stood at 18 per cent, 36 per cent and 49 per cent, respectively.
- the interdependency amongst infrastructure sectors means that to make infrastructure investment worthwhile, investment must be balanced across various related sectors. Overinvestment in some infrastructure may be wasted or even produce pressure over the supply of other infrastructure, causing bottlenecks and breakouts. Alternatively, making a good choice of a sector or area that would lead to or trigger private investment in others is theoretically more appealing.
- investigating the **significant externalities** arising from infrastructure investment at different levels-local, national and transnational (regional)-and to take them into account in setting their infrastructure priorities.

- to reap **network productivity gains** and that connecting regional networks together is particularly beneficial. Network effects provide a strong rationale for infrastructure investment in general, and for regional infrastructure in particular.
- underpinning infrastructure design, financing and funding with long-term strategic planning may help develop long-term financing for infrastructure through new innovative mechanisms like Canada's Building Canada Plan.
- **undertake cross-cutting research** into:
 - policy approaches to encourage increased infrastructure investment from other potential private sector or external funding sources such as SWFs and domestic institutional investors such as pension and superannuation funds.
 - more innovation in applying the PPP business model in some way to the upgrade and maintenance of existing infrastructures. Ways of squeezing more efficiency out of the system include investment in new technologies, and demand management strategies to better control traffic flows through road, rail, electricity and water systems.
 - the potential of land value tax needs further investigation as a source of transport infrastructure funding.
 - improving the way demand forecasts are made to reduce the seeming inbuilt optimism bias.

APEC member economy experience suggests that proper institutional capacity is needed to create, manage and evaluate PPPs. The public parties engaged in PPPs also need expertise and support. A dedicated PPP unit can perform these functions. PPP units help in separating policy formulation and project implementation, pooling expertise and experience within government, standardising procurement procedures, ensuring appropriate budgetary consideration of projects, and demonstrating political commitment and trust. Where the PPP unit is positioned within the member economy's institutional regulatory hierarchy is important. International experience shows that those positioned higher in the hierarchy tend to be more efficient and capable in their regulatory duties, because they tend to enjoy more political support. Additionally, those nearer the top have been more active in ensuring that the PPP developments have been in-line with national interests, both developmental and financial, whereas those responsible for only one sector have been more short-sighted in this regard (WB, PPIAF 2007). The Australian Partnerships Victoria PPP unit is considered a good model to copy. **For these compelling reasons, APEC member economies should establish a dedicated PPP Unit separate from the policy functions to implement PPP projects.**

So what can APEC and the Investment Experts Group in particular do to assist in the important area of infrastructure investment policy? One area is capacity enhancement. APEC's developing member economies when compared with developed economies like Australia, Canada and Korea with their mature PPP processes, have inadequate capacities

within their public and private sectors to plan and implement so many complex, risky PPP projects consistently and effectively at the national and local levels. Poor policy coherence and harmonization, cumbersome procedures and political uncertainties around the treatment of FDI all chill private sector investment in infrastructure. These issues can be addressed through targeted capacity building. Work is currently under way in the APEC Finance Ministers Process for greater commonality in markets across APEC in the implementation of PPP procurement. The aim is for a more harmonised approach with an emphasis on greater commonality in PPP bidding procedures and concession agreements.

APEC also has important objectives to promote greater economic integration in the Asia Pacific region. Improving physical connectivity through improved regional cross border infrastructure is an essential aspect of meeting this objective. Cross border infrastructure can make an important contribution to filling the infrastructure gaps in APEC's developing member economies but will require concerted, coordinated action on a regional basis with MDBs and bilateral development banks to be most effective. This engagement is already under way on a broad level in many of APEC's committees and groups and this study may be a catalyst for further meaningful engagement.

For its part, IEG can continue its important supportive work through the implementation of IFAP as effective investment facilitation can make a significant contribution to the sort of broader investment climate reform efforts widely practiced by APEC member economies. Transparency, simplicity and predictability are among its most important principles. IEG can also ensure this study is carried forward into its next stage-discussion of its key findings and recommendations at a forthcoming seminar.

CONCLUSIONS

Infrastructure is crucial for APEC's developing member economies in generating growth, alleviating poverty and increasing international competitiveness. The current and future infrastructure investment needs of both developing and developed member economies far outstrips available public sector resources even with the contribution from ODA. Promoting further involvement of the private sector in infrastructure development seems the logical way forward for all APEC economies.

This study is particularly poised to explore the possibility of applying the PPP model in infrastructure development in APEC's developing economies. The PPP model offers some significant advantages over traditional public procurement in terms of efficiency, service quality and value for money. For at least two decades PPPs have been used and promoted successfully by many APEC member economies with well-established enabling environments.

Promoting private capital in infrastructure and PPPs in particular raises a number of political, social and economic issues. APEC member economies therefore must individually and collectively continue to reaffirm their high level political commitment to microeconomic reform and to promoting PPPs as a viable policy option for infrastructure development.

Relatively inefficient public services in a given economy and the unavailability of domestic capital will likely spur the introduction of PPPs as a mode of infrastructure service delivery. APEC member economies should, in judging whether or not a project is affordable, base their funding decision on a comparative assessment of affordability for both traditional procurement and PPPs over the life of the project and not against the immediate budget limits or medium term expenditure frameworks.

Engaging in a PPP process requires member economies to ensure an enabling environment. A major task for member economies is to define clear legal and policy frameworks and to ensure that the appropriate capacity exists within the government to initiate, manage and implement PPPs. This ensures stability, predictability and gives a significant guarantee for investors and enterprise communities in infrastructure investment. APEC member economies also need to establish an appropriate and effective legal framework to complement the policy framework for PPPs, making sure their regulatory and legislative frameworks are up-to-date, clear, complete and integrated across sectors, ready to handle the reality of PPP contracts.

All APEC member economies should draw up clear rules and guidelines setting out the administrative process by which PPPs are considered and implemented. This is to ensure consistent, streamlined administration by the bureaucracy which will reduce uncertainties at different stages of project development and approval. Optimal practices in the PPP process needs to address four key issues - value for money, risk transfer, competition and contestability and transparency.

Finally the PPP process should be founded on adequate disclosure of information to enable public scrutiny of budget information including what the member economy will pay and full details of any guarantees and contingent liabilities. Where a government price subsidy is given for broader social or political reasons the community needs to be properly informed else there would likely develop wrong perceptions about the actions of the private sector. Member economies should also publish details of the service quality KPIs included in PPP contracts and performance levels achieved.

The legal context within which PPPs operate may comprise up to four aspects: supranational requirements; the national legislation; the laws and regulations of local/regional authorities; and the contract specific to the PPP project. Quality regulation at all levels, but particularly at the national and the local levels, is a prerequisite to ensure a successful PPP. The multilevel governance aspects also require an adequate interface between local authorities and national governments.

This inconsistency in PPP policy application is one reason, but there are many others, for recommending that APEC member economies should set up a national body responsible for designing and implementing a national infrastructure strategy or plan which has as a priority remit the need to improve the coordination of public and private investment in infrastructure.

APEC member economy experience suggests that proper institutional capacity is needed to create, manage and evaluate PPPs. The public parties engaged in PPPs also need expertise and support. APEC member economies should establish a dedicated PPP Unit separate from the policy functions to implement PPP projects.

APEC as a whole can help. One area is capacity enhancement. APEC's developing member economies when compared with developed economies like Australia, Canada and Korea with their mature PPP processes, have inadequate capacities within their public and private sectors to plan and implement so many complex, risky PPP projects consistently and effectively at the national and local levels. So targeted capacity building is needed. The other work is currently under way in the APEC Finance Ministers Process for greater commonality in markets across APEC in the implementation of PPP procurement. The aim is for a more harmonised approach with an emphasis on greater commonality in PPP bidding procedures and concession agreements.

APEC also has important objectives to promote greater economic integration in the Asia Pacific region. Improving physical connectivity through improved regional cross border infrastructure is an essential aspect of meeting this objective. Cross border infrastructure can make an important contribution to filling the infrastructure gaps in APEC's developing member economies but will require concerted, coordinated action on a regional basis with MDBs and bilateral development banks to be most effective. This engagement is already under way on a broad level in many of APEC's committees and groups and this study may be a catalyst for further meaningful engagement.

Specifically IEG can continue its important supportive work through the implementation of IFAP as effective investment facilitation can make a significant contribution to the sort of broader investment climate reform efforts widely practiced by APEC member economies. Transparency, simplicity and predictability are among its most important principles. IEG can also ensure this study is carried forward into its next stage-discussion of its key findings and recommendations at a forthcoming seminar.

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