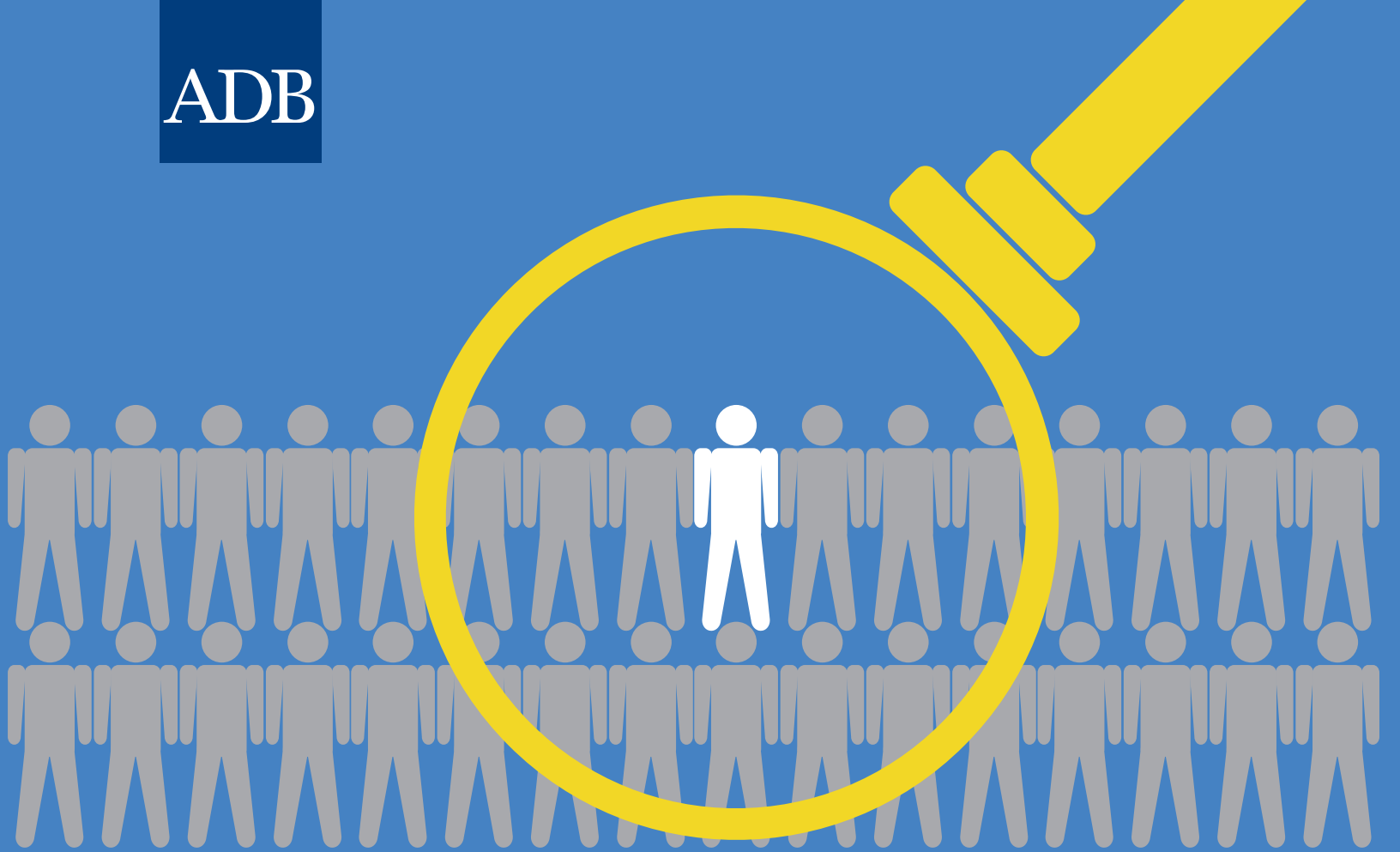


ADB



MARKET SURVEY

of Subnational Finance
in Asia and the Pacific

Asian Development Bank



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in Asia and the Pacific**

OCTOBER 2007

Asian Development Bank

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Printed in the Philippines.

Publication Stock No. BBK104408
ISBN 978-971-561-692-8

Cataloging-In-Publication Data

Settle, William Graham et al.
Market survey of subnational finance in Asia and the Pacific.
Mandaluyong City, Phil.: Asian Development Bank, 2008.

1. Finance. 2. Public-private partnership . I. Asian Development Bank.

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ABBREVIATIONS

ADB	–	Asian Development Bank
DFI	–	development finance institution
DMC	–	developing member country
EBRD	–	European Bank for Reconstruction and Development
ECA	–	export credit agency
FDI	–	foreign direct investment
GDP	–	gross domestic product
IAS	–	international accounting standards
IBRD	–	International Bank For Reconstruction and Development
IEI	–	innovation and efficiency initiative
IFC	–	International Finance Corporation
JBIC	–	Japan Bank for International Cooperation
LGU	–	local government unit
LIC	–	low income country
LMIC	–	low-middle income country
MDB	–	multilateral development bank
MPT	–	modern portfolio theory
NSP	–	nonsovereign public sector financing facility
ODA	–	official development assistance
OECD	–	Organization for Economic Co-operation and Development
OED	–	Operations Evaluation Department
O&M	–	operation and maintenance
PPP	–	public-private partnership
PRC	–	People’s Republic of China
SNF	–	subnational finance
SOE	–	state-owned enterprise
SPV	–	special purpose vehicle

NOTES

In this report, “\$” refers to US dollars.

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EXECUTIVE SUMMARY

Encouraged by decentralizing national governments, the development and financing of projects by subnational public sector entities is expanding in the Asia and Pacific region. This devolution of authority is especially pronounced with regard to public goods and services such as transport, energy, education, health care and housing.

Subnational public sector entities include local or provincial governments and state-owned enterprises (SOEs) and agencies. An increasing proportion of project sponsorship and funding to meet the demands for infrastructure involves private sector partnerships. The Asian Development Bank's (ADB) primary clients are the central sovereign governments of its developing member countries (DMCs). Consequently, the scale and role of subnational finance (SNF) demand have important implications for ADB as it pursues its development mandate.

This Board information paper looks at the potential market for SNF in the region. The work undertaken for the paper focused on infrastructure and utilities as a proxy for assessing the magnitude of financial demand by subnational entities in the region. If non-infrastructure investment requirements are considered, the magnitude of demand is even greater than this analysis suggests.

The research undertaken demonstrates that SNF is a significant and growing segment of public sector investment, particularly for public goods and services that underpin or facilitate economic and social development.

The paper concludes that the likely "feasible market" for infrastructure financing for

subnational entities across DMCs is about \$136 billion per annum out of an overall DMC infrastructure demand of about \$256 billion per annum. In addition, just over \$50 billion of infrastructure financing demand by central governments is directly related to subsovereign entities.

By their very nature, infrastructure investments are likely to be related to economic growth and development. The increasing role of subnational entities in providing infrastructure is driven by underlying trends of decentralization, sustainability and urbanization.

The demand for SNF reflects the changing nature and role of ADB's clients and a call for new financing solutions. As a result, capital markets and public-private financiers are evolving to provide these solutions.

ADB's new nonsovereign public financing facility is being piloted until 2008 as part of the innovation and efficiency initiative (IEI). This pilot has resulted in the approval, development or consideration of transactions valued at about \$3.2 billion by the end of 2006.

Given the size of the market and its connection to development impacts, SNF is strategically relevant to ADB, but it is also operationally challenging. In considering ADB's involvement in SNF (both within the existing IEI pilot scheme and outside it), certain internal issues will need to be addressed. In particular, internal skills mix, risk assessment capability and process improvements will be required if ADB is to build upon its initial experiences in SNF and use its comparative value to finance and facilitate development projects in this market segment.

I. INTRODUCTION

A. Background

In August 2005, ADB's Board of Directors authorized the piloting of several financing instruments and modalities, including public sector limited or nonrecourse SNF.¹ Preliminary indications are that the demand for this type of finance is substantial and rising. The Board specified that an analysis would be performed.² This paper is intended to satisfy this requirement.

B. Purpose, Scope and Methodology

The purpose of this paper is to examine and report on the magnitude of the market for SNF in Asia and the Pacific. The analysis includes an assessment of the size, character and constraints of the market. The work is limited to inference from relevant research, calculation of indicative market size, and a summary of actual results to date and feedback from the market.

The survey is based on a review of relevant literature,³ formal surveys and the IEI transaction pipeline. The research team held consultations with selected financiers, ADB operational and support departments, and some clients.⁴

For the purpose of this analysis, SNF is a subset of the broader market for infrastructure

finance.⁵ The rationale for using infrastructure as a proxy to assess likely demand is that infrastructure and utilities represent the single largest component of SNF to support economic development. Nevertheless, that demand is acknowledged to be larger if other non-infrastructure financing requirements (such as social development services) were included. SNF is also recognized to be available for both infrastructure and non-infrastructure operations.

C. Definitions and Qualifications

Definitions and descriptions throughout the paper are for information only and do not represent official policy, strategy or operational guidance. To convey strategic concepts and general orders of magnitude, terminology and definitions below are broad and interpreted with latitude commensurate with the purpose and limited scope of this paper.

- i. **Infrastructure and utilities** are “public goods and services” and in most cases herein include: power and energy, water, wastewater and waste management, urban transport, roads, rail, ports and airports. However, the available source data

¹ ADB. 2005. *Innovation and Efficiency Initiative: Pilot Financing Instruments and Modalities*. Manila. August. ADB's maximum exposure during the pilot period was to be kept under \$3.0 billion.

² ADB. 2005. *Innovation and Efficiency Initiative: Pilot Financing Instruments and Modalities*. Manila. Par. 32.

³ Published and unpublished material from ADB, other MDBs, infrastructure journals, capital market journals, commercial risk assessment services, etc. A list of published reference documents is available in the Supplementary Appendix A.

⁴ External survey sources include Japan Bank for International Cooperation (JBIC), World Bank Group, PricewaterhouseCoopers, and Fitch. Internal survey sources include Economics and Research Department, Treasury Department and Operations Evaluation Department (OED).

⁵ Another area of potential demand for SNF not covered in this paper is corporate finance (as opposed to project finance) by entities such as SOEs.

often exclude one or more of these subsectors or may, in some cases, include others such as health and education.⁶

- ii. **National government**(sovereign) is the central and highest government jurisdiction in ADB member countries.
- iii. **Subnational** (subsovereign) refers to entities below the level of national government specified as local government units, SOEs and special purpose vehicles.
- iv. **Local government units** (LGUs) are public administration units below the level of national government and include provincial and municipal governments.
- v. **State-owned enterprises** (SOEs) are entities that are not majority privately owned and are providing infrastructure and utility services. They include enterprises owned by LGUs and national governments.
- vi. **Special purpose vehicles** (SPVs) are legal structures designed to identify or “ring fence” specific assets, cash flows, operational functions and contractual arrangements. While no precise standardized definition is given either in the law or accounting rules, herein an SPV is an entity with a limited purpose that is expressed in its charter and contractual relationships in which it engages.
- vii. **IEI pilot instruments** (pilot instruments) were established to provide ADB and its DMC clients with alternative instruments and modalities to respond more effectively to their infrastructure financing requirements. The financing proposals included under the umbrella of IEI were established to (i) improve services to existing and new clients, (ii) be more programmatic in scope, (iii) mobilize other private sector resources more efficiently, (iv) minimize currency mismatches at the client and project levels, (v) reduce transaction costs, and (vi) provide refinancing to fundamentally sound projects with high development impact but weak financing plans.⁷
- viii. **Subnational finance** (SNF) is the provision of finance (such as equity, debt or guarantees) directly to subsovereign, quasi-sovereign and other nonsovereign public sector entities, including SOEs and local governments. In the case of ADB’s IEI pilot instruments and modalities relevant to SNF, the major instrument is the nonsovereign public sector financing facility (NSP).⁸

⁶ While health and education have lagged in privatization trends, they are increasingly seen as viable areas for public-private partnerships. (See ADB. 2000. *Public-Private Partnerships in the Social Sectors*. ADB Institute, Tokyo.) The absence of this sector from quantitative estimates is due to the survey’s narrow scope.

⁷ ADB. 2005. *Innovation and Efficiency Initiative: Pilot Financing Instruments and Modalities*. Manila.

⁸ The pilot innovation Subsovereign and Nonsovereign Public Sector Financing is considered an overall modality. Herein, the terms “modality” and “instrument” are used interchangeably unless otherwise noted.

Survey results and interpretations are not meant to guide ADB budgeting, country strategies or sector overviews. Country and sector assessments are the responsibility of the respective operational departments and part of an ongoing process. The quantitative estimations presented in this paper do not capture any absolute measure of need (such as those related to the Millennium Development Goals), nor do these estimates predict what surveyed countries will actually spend. The infrastructure demand requirements represent what infrastructure expenditures would be at best practice levels and are consistent with recent methodologies. In addition to changing and inconsistent data sets between and within countries, the scope of the survey and original source material on infrastructure in Asia and the Pacific is a limiting factor.⁹

D. Format

This paper includes five sections, an appendix and a supplementary appendix, as follows.

- i. Section I is an introduction and outline of the work methodology.
- ii. Section II assesses the significance, magnitude and supporting trends in subnational infrastructure development in Asia and the Pacific.
- iii. Section III reviews sources of public sector and SNF, as well as the characteristics of the market.
- iv. Section IV examines the initial experience of ADB's IEI pilot instruments to SNF.
- v. Section V looks forward to developing further ADB's involvement in SNF.

For economy and convenience, much of the supporting documentation, charts, tables, memo items and reference lists are contained in the appendix or supplementary appendix.

⁹ Detailed notes and qualifications are referenced in Supplementary Appendix B: Methodology Note. Total estimated investment needs are computed as the sum of annual new investment and annual stock replacement. Following that approach, top-down estimates for the region at the subnational level are obtained based on the historic relationship between national income, population and demand for infrastructure, combined with macroeconomics and an understanding of demographic growth. Subnational government annual infrastructure investment needs were estimated using a top-down approach based on analysis macroeconomic data and then reconciled with country-by-country budget estimates.

II. DEMAND FOR SUBNATIONAL INFRASTRUCTURE FINANCE

A. Regional Infrastructure Demand

Research over the past two decades indicates high returns and significant contributions to economic growth from infrastructure investment. The debate over who should be responsible for infrastructure investment decisions has prompted shifts in government policy, public attitudes and intellectual discourse. Twenty-five years ago, the state controlled infrastructure services in virtually all developing countries through ownership of vertically integrated utilities and other infrastructure entities. Today, there is a discernable trend of infrastructure service delivery being decentralized to subnational government and private entities. No matter how infrastructure services are being delivered, the value judgment that ultimately matters is made by the purchaser and consumer of these services. In this sense, infrastructure demand is and has always been decentralized.¹⁰

Recent estimates of infrastructure demand in Asia and the Pacific share a common theme: demand is exceptionally large, with some estimates of it being worth more than a trillion

US dollars over the coming decade.¹¹ The scale of economic and social development challenges in the region is massive, but no country has a chance of developing economically until quality infrastructure is in place. Given the scale of the region's investment needs and the reality that subnational entities are increasingly responsible for infrastructure decisions, a direct relationship exists between development and subnational entities.

Multilateral organizations such as the United Nations, World Bank and ADB have attempted in recent years to quantify the optimal demand for infrastructure. Demand projections vary from \$130 billion to \$600 billion annually.¹² Using techniques applied in other regions, the ADB survey team calculates the total requirements for the infrastructure finance of Asia and the Pacific to average more than \$250 billion per annum.

East and South Asia have the highest requirements for infrastructure investment finance at \$125 billion and \$76 billion, respectively. Southeast Asia, Central and West Asia, and the Pacific will require \$42 billion, \$12 billion and \$0.5 billion, respectively.¹³

¹⁰ In addition to country-specific indicators, the size and direction of the market for SNF is also evident in the migration of implementation of ADB traditional products from national to subnational entities. According to a recent OED review, the percentage of projects with subnational executing agencies has increased from 48% (1993–1999) to 58% (1999–2005). Source: OED review of 88 reports and recommendations of the President approved between July 1993 and June 2005.

¹¹ Similar evaluations and methods conducted by ADB's OED have yielded quantities for annual infrastructure demand in ADB DMCs in line with the estimates found in this report. ADB. 2006. *OED Special Evaluation Study on Urban Sector Strategy and Operations*. Manila. June.

¹² In addition to ADB internal efforts, five primary quantitative infrastructure studies were reviewed as starting points for the survey demand calculations for DMCs of Asia and the Pacific: (i) ADB, JBIC and World Bank Infrastructure Flagship Study. 2005. *Connecting East Asia: A New Framework for Infrastructure*. Manila; (ii) United Nations Economic and Social Commission for Asia and the Pacific. 2006. *Enhancing Regional Cooperation in Infrastructure Development Included that Related to Disaster Management*. New York; (iii) Marianne Fay and Tito Yepes. 2003. *Investing in Infrastructure What is needed from 2000 to 2010*. Policy Research Working Paper No. 3102. Washington DC; (iv) Tito Yepes. 2005. *Expenditure on Infrastructure in East Asia Region 2006–2010*. Washington DC. World Bank; and (v.) Ramgopal Agarwala and Prabir De. 2005. *Reducing Global Imbalances and Accelerating Growth: The Role of Regional Cooperation in Asia*. A paper written for the Fourth High Level Conference on Asian Economic Integration: Towards an Asian Economic Community. New Delhi.

¹³ For a detailed breakdown, see Appendix 1: ADB DMC Annual Infrastructure Demand.

The largest subsectors are energy (49%), transport (26%) and telecommunications (15%). These breakdowns are fairly consistent with historical figures. However, compared with past experience, urban infrastructure investment has accelerated and telecommunications has decreased slightly. All infrastructure sectors are driven by demand from India and, even more so, by the People's Republic of China (PRC), especially in energy. The reduction in telecommunications is primarily due to continued absorption of capacity built in the late 1990s and a significant reduction in costs afforded by new technologies and intense competition. Among sectors, telecommunications is generally more advanced in terms of policy reform; electricity, transportation and housing are at intermediate stages; and water and sanitation are making slow but steady progress.¹⁴

B. Subnational Infrastructure Demand and Supporting Trends

1. Three Fundamental Elements Supporting the Subnational Finance Trend

The market for SNF is large and poised to continue to grow, albeit with cyclical blips. Three fundamental forces that extend beyond political and economic cycles support continued growth in SNF: (i) decentralization, (ii) sustainability, and (iii) urbanization.

- i. **Decentralization** continues to gain effect and accounts for some 76% of subnational administration of infrastructure services in the region. However, the “feasible market” for SNF (discussed in the following section) represents only 55% of the total. Therefore, many DMCs have room to devolve further the infrastructure service delivery assignment.¹⁵ The effective space for increasing the “feasible” subnational demand market would add \$53 billion to the \$58 billion presently associated directly with national government. The drive to move decisions on investment and service delivery closer to the people that use and pay for these services is likely to continue.
- ii. **Sustainability** makes economic, environmental and political sense, a powerful (and rare) combination.¹⁶ Sustainability is less about public versus private and more a question of effective delivery of economically sound solutions, as well as prudent credit and portfolio management. Benefits arise for communities only when infrastructure facilities create services that respond efficiently to effective demand.¹⁷ These fundamentals are global in nature.¹⁸ SNF for sustainable development is a

¹⁴ Briceño-Garmendia, Estache, Shafik. 2004. *Infrastructure Services in Developing Countries: Access, Quality, Costs and Policy Reform*. World Bank Policy Research Working Paper 3468. December.

¹⁵ The effective space here is larger than 26%. Only 55% of total demand is currently feasible. The area for potential growth in SNF includes this potential.

¹⁶ Sustainability means (in addition to meeting sound financial and economic principles) environmental and social sustainability, and good governance principles. These principles can be mutually enforcing. Many professional firms today have joined subnational and national governments in advocating these ideas as a matter of good business practice. Some private sector participation examples have used private players to establish, implement and monitor strict safeguard conditions of MDBs.

¹⁷ ADB. 2002. *Strengthening Public Infrastructure Investment Policy*. Manila (TA: PRC 3253).

¹⁸ For example, a recent survey by Standard & Poor's noted that “88% of public-private partnership (PPP) projects [in the UK] were delivered on time and to budget; in contrast, only 30% of comparable projects delivered in the traditional way were completed either on time or to budget. Furthermore, no UK PPPs rated by Standard & Poor's have so far defaulted.” Standard & Poor's. 2005. *Global Credit Survey 2005*.

logical corollary of increased overall levels of financing for such projects. Indeed, in addition to subnational entities, even national governments may seek SNF as part of the drive for sustainability.

- iii. **Urbanization** is increasing the level of influence, importance and demand for infrastructure from a range of entities. This well-established and irreversible trend is accelerating globally. Megacities are a dynamic factor behind much of the proportional increase in subnational provision of infrastructure. Urban areas are reaching a critical mass that will require serious attention to infrastructure development and upkeep.¹⁹

2. Subnational Demand for Finance

SNF is categorized herein as either “feasible” or “not feasible.” Feasible demand for SNF means that borrowing without a sovereign guarantee is permissible by law and foreign finance is not severely restricted or prohibited by law or custom.²⁰ Many governments are seeking to establish rules and regulatory frameworks that discourage excessive lending by the financial markets and excessive borrowing by subnational entities. However, significant differences exist among the surveyed countries in terms of their approach to subnational borrowing.

To estimate subnational demand and draw reliable inferences, 12 countries were grouped

into three tiers by sovereign credit ratings. The highest credit rating group is tier 1, which includes India, Malaysia, PRC and Thailand; tier 2 includes Indonesia, Pakistan, Philippines and Viet Nam; tier 3 includes Bangladesh, Papua New Guinea, Sri Lanka and Uzbekistan. The quantity of demand for finance by subnational entities is distributed among three types of entities (LGUs, SOEs, SPVs) and then classified as either feasible or not feasible.

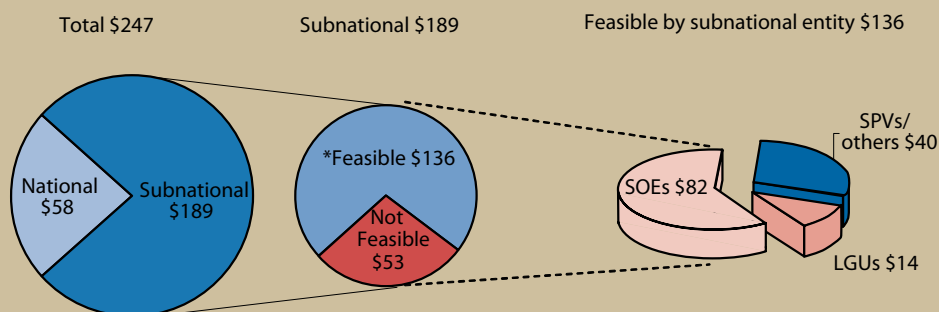
The three tiers combined require about \$247 billion a year on average.²¹ Of this amount, about \$189 billion is under the jurisdiction or control of subnational entities; \$53 billion of this amount is not considered feasible. The balance is divided among three subnational entities: SOEs (\$82 billion), SPVs and other (\$40 billion) and LGUs (\$14 billion). See Figure 1.

Of the \$189 billion subnational financing requirement, \$136 billion is considered feasible. This means that even though 76% of infrastructure decisions have been devolved to subnationals in an administrative sense, only 55% of the total demand for infrastructure is considered a feasible market for SNF. The breakdown of the total feasible demand (\$136 billion) from subnational entities is presented in Table 1. In PRC, demand for infrastructure by LGUs is estimated at just over \$46 billion. However, LGUs in PRC, like in many other DMCs, are not allowed to access finance from external sources. In India, estimates for LGUs are \$12.9 billion. However, due to internal restrictions, banking

¹⁹ The effects of urbanization are especially acute in Asia and the Pacific, with the fastest-growing urban population in the world, 61% of the global population (3.9 billion people in Asia) and 10 of the world’s 19 megacities (populations of more than 10 million). Besides megacities, small and medium-sized towns and cities in India and PRC can have up to 1 million people and are growing at a faster rate than large and well-established megacities. (OED Urban SES 2006.)

²⁰ Overly strict interpretation of this grouping or any classification system should be avoided as it could limit efforts to improve the policy environment by pilot transactions.

²¹ The 12 countries as a whole represent 95% of the total population of Asia and the Pacific and more than 90% of regional gross domestic product. The precise estimate for the three tier groups is \$247 billion of the \$256 billion demand for all DMCs.

Figure 1: Three Tier Groups Total Annual Average Infrastructure Demand (\$ billion)


*Feasible = borrowing without sovereign guarantee is permissible and foreign finance is not severely restricted.
 LGU = local government unit, SOE = state owned enterprise, SPV = special purpose vehicle.
 Source: ADB Survey Team. 2006.

Table 1: Three Tier Groups Total Annual Average Infrastructure (\$ billion)

	S&P Rating	Total	Feasible	National	LGUs	SOEs	SPVs
All Tiers		247.0	136.0	[58.0]	14.0	82.0	40.0
Tier 1		200.0	116.0	[37.0]	60.0	30.0	
PRC	A-1	125.4	61.8	17.2	46.4	58.4	3.4
Malaysia	A-2	2.4	1.8	0.4	0.3	1.8	
Thailand	A-2	5.8	5.2	0.5	0.1	4.8	0.3
India	B	66.2	47.5	18.7	12.9	7.9	26.7
Tier 2		38.0	20.0	[12.0]	6.0	10.0	10.0
Indonesia	B	19.3	11.9	3.7	3.8	7.1	4.8
Pakistan	B	7.0		5.9	1.1		
Philippines	B	7.3	5.3	2.0	0.6	2.2	2.4
Viet Nam	B	3.9	2.4	0.8	0.6	0.1	2.3
Tier 3		10.0	0.0	[9.0]	1.0		
Papua New Guinea	B	0.3		0.2	0.0		
Bangladesh	No Rating	6.4		5.6	0.8		
Sri Lanka	No Rating	1.7		1.6	0.1		
Uzbekistan	No Rating	1.2		1.0	0.2		

Note: Numbers may not total because of rounding. Bracketed “[]” figures are funds earmarked for subnational investment under national government control. Blocked figures are considered to be “not feasible.”

LGU = local government unit, PRC = People’s Republic of China, S&P = Standard & Poor’s, SOE = state-owned enterprise, SPV = special purpose vehicle.

Source: ADB. 2006.

regulations and constitutional limits, India's LGU borrowing should be scrutinized with care. SOEs and SPVs require about \$7.9 billion and \$26.7 billion, respectively. These entities can access finance directly with minimal legal and regulatory restrictions. While Indonesia allows

subnational borrowing, lack of resolution of financial arrears to the central government makes \$3.8 billion of LGU financing currently unfeasible. Total feasible subnational infrastructure finance demand in Indonesia is estimated at \$11.9 billion.

III. TRENDS IN SUBNATIONAL INFRASTRUCTURE FINANCE

A. Markets, Clients and Solutions

The size and nature of finance for infrastructure varies from country to country and is shifting. From 1992 to 2003, an estimated \$622 billion was invested globally in developing country infrastructure projects.²² Of this, 40% to 45% (\$280 billion) went to the Asia and Pacific region. About 22% of total infrastructure investment spending over this period came from the private sector, 70% came from the public sector, and 8% from official development assistance (ODA). Since 2003, there has been an accelerating shift away from traditional public financiers toward capital markets and private sector financiers. While net capital flows to DMCs were up from \$32 billion in 2000 to \$160 billion in 2005, ODA was a negligible contributor. Financing is increasingly provided on more simple terms and with fewer restrictions.²³

National governments traditionally have been the predominant players in infrastructure demand in Asia and the Pacific. But this has changed dramatically over the past 20 years. Today, national governments control less than a quarter of the \$247 billion infrastructure demand (about \$58 billion annually). Central governments have been devolving responsibility to lower jurisdictions in many DMCs. Even in countries where the process has been slow, local government is increasingly more influential in infrastructure decisions.²⁴ Decentralization of service delivery alters but does not remove the role of the national government. The overall enabling environment for sustainable

investment remains fundamentally a countrywide issue. This macro or “systematic” risk is a critical benchmark for potential global investors and infrastructure development.

Along with devolutionary changes is an increasing pressure to make governments at all levels more accountable to citizens and more attuned to the demands of the marketplace. This sensitivity to market behavior in the face of limited resources includes the drive to make more activities self-supporting, to curtail the provision of free service, and to shed activities that commercial enterprise can provide better and faster.

The emerging debate is how to develop sustainable investment within prudential limits and the prevailing policy and institutional environment. Shifting responsibility for decision-making regarding infrastructure investment has placed accountability closer to the people who ultimately determine the value of these services (and pay for them). In addition to improving fiscal space, this decentralization process can serve to improve governance at all levels of government.

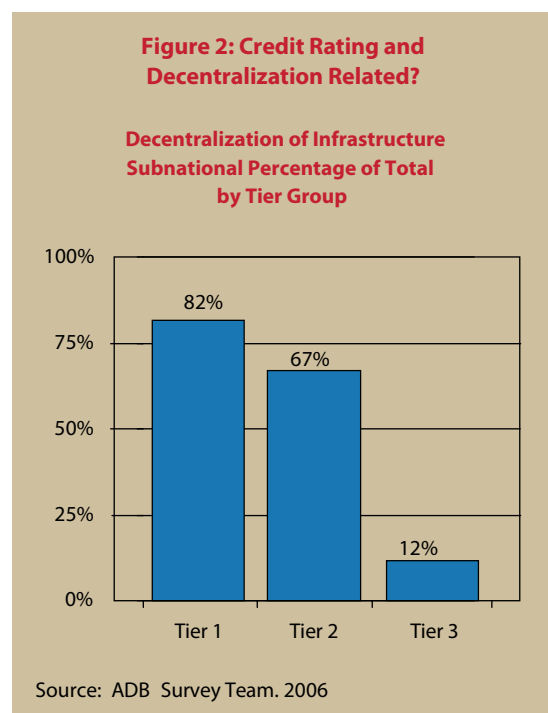
One benchmark of good governance, from a capital markets perspective, is sovereign credit ratings. Although several factors contribute to a country’s credit rating, a comparison of the three tier groups indicates that decentralization of infrastructure responsibility to subnational entities in the surveyed countries is generally

²² World Bank. 2005. *Global Development Finance 2004*. Washington DC, 149.

²³ Fitch Ratings. 2006. *Loan Volumes Surge, Covenants Shrink in 2005*. 5 April.

²⁴ ADB. 2003. *Local Government Finance, Private Resources, and Local Credit Markets in Asia*. ERD Working Paper No. 46. October.

attended by higher sovereign ratings. Tier 1 countries have achieved higher degrees of decentralization than countries in tiers 2 and 3. In tier 1 countries, 88% of infrastructure responsibility is undertaken at the subnational government level. Tiers 2 and 3 are at 67% and 12%, respectively. (See Figure 2.)



LGUs account for just over one quarter (25%) of infrastructure demand, about \$67 billion annually. However, many LGUs are not well equipped to manage decentralization and continue to struggle with capacity issues. Functional and fiscal decentralization²⁵ may adversely impact on the viability of LGU activity in urban transport, water supply and sanitation. Some municipalities are simply too small to achieve the minimum scale necessary to ensure

effective service provision and fund-raising on competitive terms. This is particularly the case where services require large-scale long-term capital investments in geographically dispersed and overlapping jurisdictions. To alleviate the constraint, some LGUs have sought cooperation with other LGUs to achieve scale, such as the Cities Alliance concept or credit pooling schemes. Also, LGUs are increasingly turning to SOEs and SPVs to deliver infrastructure services, often with the participation of the private sector.

SOEs control an estimated 33% of total infrastructure demand (60% of subnational entity demand). SOEs operate and invest in infrastructure without direct national government line ministry control. Many SOEs are restructuring and financing their balance sheets, commercializing operations and facilitating better shareholder accountability. Their financial strategies are becoming more sophisticated. Progress has been noted in areas such as corporate governance, responsive management structures, independent directors and adherence to social and financial sustainability principles. SOEs generally provide services in regulated sectors that have large spatial scale, such as transport and energy. In line with global practice, SOEs and LGUs are increasing the use of SPVs for project operations and finance.

SPVs account for 16% of domestic infrastructure finance demand. However, these vehicles are increasing their share of the infrastructure market at a rapid rate. SPVs are legal structures used to identify property and relationships within a project or sector. They are especially

²⁵ An example of functional versus fiscal decentralization: national governments may, in some instances, provide some financing for operation and maintenance (O&M) spending, with local bodies deciding on certain narrow policy and regulatory matters only (e.g., pricing, service standards). In the absence of adequate coordination of fiscal and regulatory policies, subnational entities have little incentive to make sustained progress toward reducing (or recovering) unit costs and where the private sector is involved in respecting contractual obligations. Tito Yepes. 2005. *Expenditure on Infrastructure in East Asia Region 2006–2010*. World Bank. Washington DC.

relevant to LGUs attempting to disengage from the day-to-day operation of infrastructure services. SOEs and private firms use these vehicles to identify or ring fence specific assets, cash flows, operational functions and contractual arrangements, and to raise long-term nonrecourse finance. Indications are strong that SPVs will assume an increasing share of infrastructure delivery, including use for nonsovereign guaranteed finance by national governments.

B. Sources, Uses and Vehicles

With increasing pressure to make subnational entities more accountable to citizens and more attuned to the demands of the marketplace, the challenge for subnational entities is how to raise funds effectively from the market and invest more diligently. Funding choices available to borrowers have increased, along with the range of parties providing these financing choices.

National governments have a wide variety of means to finance their needs. They are the primary issuers of debt securities, including sovereign paper held by domestic banks. National governments are responsible for effective intergovernmental financial transfers and, in some cases, guarantee LGUs and bank channel financing to SOEs. However, budgetary constraints and sustainability concerns are leading to reform and more frequent use of private initiatives.

Local governments are increasingly compelled to be less dependent on traditional sources of finance, such as vertical transfers from central government, local taxes and general budgets, and sovereign guarantees for multilateral credit. A difficulty for many LGUs is that they are restricted from borrowing and have limited capability to deliver devolved services in an efficient and cost-effective manner. Of the \$67

billion total LGU demand for infrastructure, only \$14 billion is presently viable for external finance. Development finance institutions have been less prominent in LGU financing over time. LGUs are increasingly turning to specialized firms (including SOEs and SPVs) to deliver infrastructure and its finance.

SOEs comprise a diverse group of enterprises, ranging from nationally owned firms to locally managed and owned utilities. They are significant players in infrastructure. The majority of subnational infrastructure finance comes from SOEs (\$82 billion in annual demand, or 33% of total demand for infrastructure). SOEs access capital from sources other than the central government budget. Some are active in bond markets and some have floated initial public offerings, including electricity utilities in India and PRC. These firms are generally financially viable when operating in a rule-based market environment. SOE fundraising is increasingly achieved without a sovereign guarantee, utilizing SPVs in many cases.

SPVs have been created in a number of countries (\$40 billion) and are the fastest-growing subnational entity due to attractive features that can be tailored to the requirements of the parties involved in infrastructure delivery and finance. In some cases, SPVs are the sole vehicle or mechanism empowered to access finance for local government projects from external sources. SPVs borrow against the value of project assets and cash flows. SPV financing is normally extended without recourse to sponsors.

C. Risk and Capacity Shapes the Market

1. Systematic and Entity-Level Risk

The gap between the “ideal” and the “real” level of infrastructure finance in Asia and the Pacific is

substantial. If regional investment conditions and new relationships continue to develop, there is no reason why private finance should not be a bigger player in regional infrastructure. Why are private companies avoiding Asia and the Pacific? The answer lies in the risk and return profiles of these investments. For investors, there are two general categories of risk: systematic and entity-level risk (or unsystematic risk).²⁶

Systematic Risk: In several surveys of potential investors, including those with experience in the region, the principal concerns involve property rights²⁷ and rule of law. These issues are a function of the enabling environment.²⁸ The rule of law and property rights matter in theory and in practice.²⁹ Institutional investors call this “systematic risk.” Systematic risk is part of the overall environment that affects all financial and economic activities. This risk is quantified and applied by portfolio players as a benchmark³⁰ that not only sets the threshold for individual project decisions, but may keep a country out of consideration altogether if this risk is perceived as intolerable (footnote 14).³¹

Entity-Level Risk: Once the systematic risks are quantified (or mitigated) and the decision to invest in a geographical region or country is made, prudential processes will focus on project-specific risks and rewards. The due diligence metrics for SNF are akin to private banking and include three elements that are essentially the same as commercial credit appraisal, with some distinctions for subnationals: (i) character – clear identity and willingness to meet obligations; (ii) capacity – operational ability to meet obligations (including cash flow); and (iii) collateral – assets and intercepts.

- i. Character is a foundation element in assessing credit standing. A starting point is “character identity.” In the subnational sense, it may be difficult to identify clearly the client (both natural and legal persons). Who is responsible, accountable, and how well do you know them? Sometimes an ambiguous interrelationship between LGUs and other government agencies and utilities causes problems

²⁶ This is a generic conception of risk. Strategic and operational guidance is provided by ADB documents such as country partnership strategies, *Staff Instructions for Nonsovereign Public Sector Financing* (ADB 2006) and *Financial Management Guidelines* (ADB 2005), etc.

²⁷ “There has been considerable discussion in recent years over the role of decentralization in delivery of infrastructure services, but scant attention to the importance of property rights. The system of property rights in a country is rooted in the structure of property ownership which is a principal determinant of the financial, institutional, and statutory capacities of role players to deliver infrastructure services. A subnational entity’s capacity to deliver infrastructure services is directly related to the scope, clarity, precision, and strength of the party’s rights over properties that are inherent to the provision of these services. Those role players with the best-defined set of property rights are, despite transitional impediments, best equipped to deliver sustainable infrastructure services over the long term.” ADB. 2002. *Strengthening Public Infrastructure Investment Policy in China: Strategic Options for Central, Provincial and Local Governments*. Manila. (TA: PRC: 3253.)

²⁸ World Bank. 2002. *Survey of International Investors in the Power Sector*. Washington DC.

²⁹ Banerjee Sudeshna Ghosh, Jennifer M. Oetzel, and Rupa Ranganathan. 2006. “Private Provision of Infrastructure in Emerging Markets: Do Institutions Matter?” *Development Policy Review*.

³⁰ See Appendix 3 section on Modern Portfolio Theory on the “risk-free” rate.

³¹ While comprehensive borrowing laws are a desirable end result, their construction should be incremental, occurring as borrowing needs arise and loan contracts are drafted. While not everything needs to be in place before markets can operate, participants should be mindful of elements that are still a work in progress (Peterson, George E. 1999. “Municipal Assets, The Municipal Balance Sheet, and Municipal Finance.” Chapter II in *Municipal Real Property Asset Management: An Overview of World Experience, Issues, Financial Implications, and Housing*. The Urban Institute. U.I. Project 06917-000. Washington, D.C.). The 1990s saw an impressive array of reforms in the way the sectors were being managed, ranging from corporatization to full divestiture. They also included many efforts to promote competition whenever possible and to create independent sector regulators when necessary. Reliable data on infrastructure policies are, however, no easier to come by than data on access and quality.

when it comes to identifying the appropriate counterpart or administrative authority.³² Another issue is the entity's balance sheet and the extent to which it properly reflects financial conditions (a form of identity of a company). Many subnationals have contingent liabilities that are not captured in financial statements (mostly pension or other human resource obligations).³³ A second feature related to character is "willingness to pay." There is little incentive to pay if the consequences for default are not clear and closely aligned with responsibility and accountability. In SNF, willingness to pay is also willingness to fulfill obligations, such as concession agreements and other essential contracts.

- ii. The second most important element in credit assessment is capacity. A starting point is cash flow capacity. Utility revenues are typically part of some contractual (tariff) agreement. It is usually important that the tariff framework be unambiguous and relatively predictable and that costs

are fully accounted for, including operation and maintenance (O&M), capital and currency risk.³⁴ Increasingly, the collection of payment from customers and composition of revenues are important aspects of this equation. Many LGUs have held on to collection duties with poor results. Collections are increasingly being undertaken by commercial firms, usually the operator or its agent. Another important consideration regarding the visibility and credibility of revenue projections is that the subsidized portion of revenues be accurately quantified, as this portion of revenues is considered of lower credit quality.³⁵ A second feature is related to operational capacity. This includes the full range of operational, technical, engineering and project implementation skills. The ability or incentive to carry out effective maintenance can represent a significant capacity issue that is too often overlooked. O&M is critical not only to effective service delivery, but it also represents 35% to 50% of the total cost of infrastructure.³⁶

³² Other character and identity factors include clarity from higher levels of government regarding what local investments will be financed from local savings or borrowings; certainty of revenue and expenditure assignments of local budgets; and ultra vires risk (risk that a contracting party is legitimately empowered), etc.

³³ This issue is apparently not a "deal killer" where enabling frameworks are in place, to wit, some \$800 billion in such liabilities are not reflected in the financial statements of issuers of municipal bonds in the USA. (See New York Times, August 8, 2006 front page story entitled "Public Pension Plans Face Billions in Shortages" cites a Barclays Global Investments calculation that "if America's state pension plans were required to use the same methods as corporations, the total value of the benefits they have promised would grow 22 percent, to \$2.5 trillion" with only \$1.7 trillion having been set aside to meet these obligations.")

³⁴ The currency mismatch can occur irrespective of the tariff regime, or the suitability of the regulatory framework governing a particular project.

³⁵ The level of subsidy (if any) can be viewed as a negative indicator in as much as raising tariffs can become a difficult promise to keep if the budgetary and political climate changes.

³⁶ See various infrastructure studies from ADB, the World Bank group and the United Nations. Regarding retained earnings: The primary source of funds for private firms, even in developed capital markets, is retained earnings (historically 60% to 70%). This source of funds may be equated, in the LGU or national government sense, to intergovernmental transfers and own source revenues. In the case of strictly government-held state-owned enterprises, incentives are often insufficient to encourage attention to maintenance, much less retained value. However, this concept could be an important one given the amount of capital required to cover O&M. The source of funds for this expense must be a part of project feasibility and are best set aside (retained) for that purpose.

iii. The third element in credit assessment is collateral. In the subnational arena, repossession of the subject asset can be impractical. This circumstance and others³⁷ have prompted lenders to look for other forms of collateral, including intercepts (e.g., lockbox, escrow accounts). Although intercepts have been effective in reducing municipal loan arrears, they are not without problems. An intercept arrangement does not overcome the risk that a state or central government will drastically reduce the intergovernmental transfer that serves as collateral enhancement. The risk that central authorities will reduce local tax-sharing receipts or grant transfers can be protected against only by other types of measures, such as a constitutional provision stipulating local transfer entitlements, or a track record of stable transfer policy. This is an example of the systematic risk issues where ADB may add a measure of assurance to sponsors facing untested legal and regulatory frameworks.

2. Other Issues

a. Structures

Ambiguities in responsibility and complex structural arrangements can be a significant challenge. Fostering an enabling environment and development of entity-specific capacity is

a broad requirement to support nonrecourse finance at the local level. If an infrastructure investment is to provide effective service delivery, it needs to be based on real demands from actual market areas, not on administrative units through which these market areas are governed.³⁸

b. Governance

A corollary to sustaining increased levels of investment is governance. A continued focus, which builds on previous improvements, will help to ensure that new investments translate into better infrastructure services for underserved segments of the population and economy. More transparent decision making tends to minimize the risk of corruption, as is evident in the literature on disclosure rules.

“Moral hazard” is a potential issue in any transaction involving complex public administrative relationships.³⁹ It is often described as the risk that a party to a transaction has not entered into the contract in good faith, has provided misleading information, or has an incentive to take unusual risks. Moral hazard (and its offspring, adverse selection) is the result of sector or project conditions or designs that foster misalignment of responsibility, accountability and incentives. Therefore, it can arise in a multitude of circumstances. The term applies to many aspects of SNF, including the following.

- i. The notion of an implicit guarantee by the national government to the subnational or to the private financier (resulting in too much credit and/or taxpayer bailouts).

³⁷ Other risks include a failure to protect debt repayment fully through subnational government borrowing ceilings.

³⁸ ADB. 2002. *Strengthening Public Infrastructure Investment Policy, PRC*. June.

³⁹ The term “moral hazard” originated in the insurance industry where it was used to describe the “immoral” nature of an insured person who causes harm in order to collect insurance. The term was first introduced in the economic context as used today by Mark V. Pauly, Northwestern University, in “The Economics of Moral Hazard: Comment”, *American Economic Review*, June 1968.

- ii. Over-reliance on subsidies and government guarantees to bring in the private sector (resulting in fewer incentives for the private sector to deliver,⁴⁰ or default by the local government on promises).
- iii. Over-reliance of the central government and some SOEs on ODA (resulting in a lack of incentive to reform, especially in fragile states).

c. Capacity

The need for capacity development at the subnational level is readily apparent, in varying degrees, in all DMCs. Subnationals in need of finance may be allowed to take external finance, but may not be capable of effectively managing that responsibility. In some cases, subnational entities may be barely capable of maintaining services even with assistance from the national government. Lending

without sovereign guarantees would not be possible or appropriate in these cases. However, technical assistance for capacity can play a role in assisting the movement of these entities toward self-sustainable and well-managed operations. Institutional capacity building is a key crosscutting element of the ongoing public sector reform agenda. Quality deficiencies, misallocated resources, excessive costs and declining interest of private investors can often be traced to insufficient institutional capacity. Capacity constraints can be especially severe at the local government or municipal level.

When projects are well prepared and implemented, these investments generally provide high financial returns and socioeconomic benefits at the least risk.⁴¹ However, infrastructure investments that attempt to redistribute growth carry high risk, and involve experience and skill sets that are often new to subnationals.⁴²

⁴⁰ For example, when a major portion of revenues comes from government subsidies, managers have less incentive to be efficient and effective and are more interested in the requirements of government officials than in customer needs.

⁴¹ "Getting infrastructure right requires more than just finances. It requires vision, strategic planning and management, attention to social and environmental consequences, and the capacity to follow through." Source: ADB. 2006. "Improving the Welfare of the People Through Infrastructure Development." Liqun Jin, Vice President. Keynote Address. Operations 1. Seoul, Republic of Korea. 8 November.

⁴² "The danger of infrastructure investments in anticipation of economic demand or to redistribute economic growth is that market demands for the resources or new urban sites for development and investment attraction may be overestimated by inadequate estimation techniques, may be delayed because of slowdowns in national and global economies, or may not emerge at all. High quality infrastructure on its own is rarely the major factor in developing resources, attracting investment and stimulating economic growth in a county, city, region, or country. Markets, labor and other production inputs, good management, entrepreneurship, and a good investment climate are generally more important to investment decisions by enterprises. Speculative infrastructure investments can lead to a serious misallocation of scarce investment resources and much lower economic growth and levels of prosperity and socioeconomic development for the total economy." ADB. 2002. *Strengthening Public Infrastructure Investment Policy*. Manila (TA: PRC 3253).

IV. THE SUBNATIONAL MARKET AND ADB

A. Strategically Relevant - Operationally Challenging

1. Strategic Compatibility

SNF is not an end in itself. Ideally, it should be used to obtain long-term capital for investments that provide benefits now and into the future. Facilitating SNF complements the wider development agenda of economic reform, capacity development and sustainability, particularly in infrastructure. These infrastructure services are crucial in supporting economic growth that reduces poverty and helps people to achieve a higher standard of living. SNF also allows ADB to encourage the participation of the private sector in key services, and pave the way for successful delivery of these services to end users. The process will also allow governments to reduce their financial transfers to these clients, thereby creating fiscal space and releasing resources for other development requirements.

ADB's new private sector development framework⁴³ provides strategic guidance on many aspects of SNF. The framework fits the stylized groupings from the three tier groups discussed above. In tier 1, the focus is on introducing "best practice" or scaling up and supporting existing policies and programs. Tier 2 focuses on leveraging private sector finance, promoting public goods and services, and sustainability with private participation. With tier 3, the focus is on an enabling policy and institutional environment, and on opening

the door to investment. These three thrusts overlap and complement each other in terms of impact and internal delivery. Coordination and cooperation at the operational level are critical to implementation. Ongoing efforts by staff and management have demonstrated progress as each approved SNF concept has been a joint effort of ADB's regional departments and Private Sector Operations Department.

2. ADB products and delivery capability are critical to executing the strategy

ADB operations have historically been centered on public sector projects for infrastructure (primarily energy and transport, agriculture, and financial intermediaries). A certain level of public sector bias is understandable since sovereign lending historically accounts for more than 97% of approval volume. This volume was a result of demand for products and services that were highly valued, inexpensive and in scarce supply.⁴⁴ Today, many countries do not see these goods and services as inexpensive or in short supply. In addition, many national governments are handing decision authority to subnational entities that are not as familiar with ADB. In addition, other market participants have been offering lower prices, long tenors and a faster service. They have supplanted traditional ODA products and delivery modes as is evident by the record reduction in ODA finance in both relative and absolute terms over the past five years.

⁴³ ADB. 2006. *Private Sector Development: A Revised Strategic Framework*. Manila.

⁴⁴ ADB's "product" portfolio includes (i) two main products (finance and technical assistance); (ii) three services (fostering an enabling environment, investment in public goods and services, and catalyzing private investment); and (iii) four instruments (debt, equity, guarantees and technical assistance).

ADB has initiated a pilot scheme through the IEI process and provided a new modality focusing on a nonsovereign public sector facility. However, despite the relevance of this new facility, an increase in ADB's effective involvement in SNF will require further improvements in ADB's processes and capabilities. This is particularly so if financing and technical assistance solutions are to match market and client needs, as well as effective development outcomes.

B. Pilot of Nonsovereign Public Sector Financing Facility

The nonsovereign public sector financing facility (NSP) is not restricted to infrastructure projects and may be used for both corporate borrowings and project finance. The facility provides debt finance (loans and guarantees) directly to selected nonsovereign public sector entities without a central government (sovereign) guarantee. The NSP facility is designed to support projects and programs that deliver clear development objectives and are aligned with an individual country's priorities and ADB's strategies to reduce poverty and support sustainable growth.

Under the NSP, ADB directly assumes the credit risk of the borrower without additional support from the central government. Processing this type of financing requires detailed due diligence and independent risk assessment. The due

diligence process covers technical, commercial, financial, legal, regulatory, safeguards, management, governance, institutional and related matters. ADB intends to follow best market practice in this regard. Financial terms (pricing) are set on a commercial basis, similar to the regime applying to ADB's private sector loans. Due diligence, financial terms and the project's transaction structure are to be comprehensively assessed by management before seeking ADB Board approval. All NSP facilities must comply with ADB's standard policies, including procurement guidelines, governance and anticorruption policies, and policies on safeguards and social dimensions.

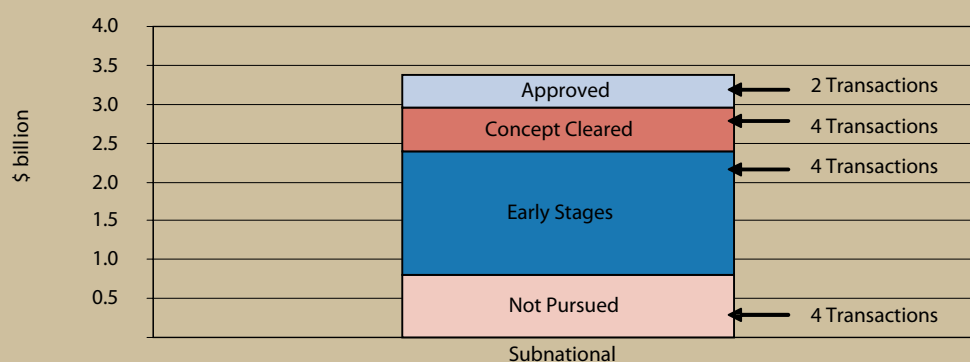
1. NSP Experience

Since the inception of IEI in 2005, a total of 14 SNF transactions have been reviewed: (i) four transactions representing about \$800 million advanced no further, (ii) two valued at about \$430 million⁴⁵ have been approved, (iii) four valued at \$550 million are in the concept stage, and (iv) four valued at \$1.6 billion are in the early stages of development and concept consideration. Figure 3 below provides a snapshot of the NSP pipeline.

NSP is not able to work successfully unless it is accompanied by an efficient (streamlined) approval process. The procedures recommended for NSP are similar to those applied in Private Sector Operations Department financing.

⁴⁵ The amount includes associated B-loans. Transactions through 31 December 2006.

Figure 3: Innovation and Efficiency Initiative Pilot Instruments
\$ billion



Category	Value (\$ billion)
Approved	0.43
Concept Cleared	0.55
Early Stages	1.60
Not Pursued	0.80

Source: ADB Survey Team. 2006.

2. Feedback

Interviews with project managers and back-to-office reports indicate that NSP is a potentially valuable offering for subnational clients if internal processes are improved. One review of urban projects in PRC indicates demand at the local project manager level.⁴⁶

The results of a recent survey questionnaire⁴⁷ revealed the difficulty that many subnational entities have in accessing secure project financing that ADB may be able to provide.⁴⁸ This implies that ADB project teams must actively market NSP.

A major challenge is to increase awareness within the subnational entity market. For example, a March 2006 back-to-office report with respect to the Fiji Islands indicates that while there is tremendous interest for financing alternatives by SOEs and the Fiji Electricity Authority, there is only a modest understanding of the benefits that these instruments can provide.

⁴⁶ ADB. 2006. *Urban Sector Strategy and Operations Evaluation Study*. Manila. (SST: REG 2006-03.) 46–47.

⁴⁷ The subnational entities in this case were project implementation units. The ADB Treasury Department survey contained questions about borrowers' preferences in terms of loan currencies, cost-base rates, repayment terms and debt management features, and other areas. The survey was sent to ADB's points of contacts such as ministries of finance in Azerbaijan, Bangladesh, Fiji Islands, India, Indonesia, Kazakhstan, Pakistan, Papua New Guinea, Philippines, PRC, Sri Lanka, Uzbekistan and Viet Nam. Source: ADB. 2006. *Enhancement of ADB Loan and Debt Management Product*. Manila. October.

⁴⁸ Results of OED questionnaire conducted with project directors and managers of project implementation units in India, Philippines and PRC. ADB. 2006. *OED Special Evaluation Study Urban Sector Strategy and Operations*. Manila. June.

V. PREPARING FOR THE FUTURE

A. Awareness of the Market

Market trends and changing roles of key stakeholders in relation to SNF have implications for how best to position ADB in this growing market. The trends underlying the demand for infrastructure and subnational decision making are driven by member countries which themselves are responding to global and domestic factors that require more awareness of good project design, innovative solutions and the ability to deliver finance on time.

B. Building on Experience

ADB has taken the first step over a trial period to work with SNF. As a result, ADB's appreciation of the opportunities and constraints with respect to SNF is improving. Facilitating SNF complements the wider development agenda of economic reform, capacity development and sustainability. Infrastructure services run by the "locality" are critical to helping people better their lives, especially the less fortunate. ADB must continue to improve its relevance in this market. This includes the continued development of internal capabilities and skills to manage SNF relationships, transactions and processes.

C. Recognize Comparative Values

Regional value and factors specific to ADB set the stage for engagement in SNF. Asia and the Pacific member countries comprise diverse populations

while also sharing commonalities that suggest value relative to other regions, including the following.

- i. The most dynamic infrastructure and economic growth in the world.
- ii. A history of best project performance globally.⁴⁹
- iii. The region includes two especially dynamic countries, covering 40% of the global population, which are trying to catch up in infrastructure development.
- iv. It is the first time in modern history that more than half of commercial trade is regional.
- v. The region dominates the global emerging market for foreign direct investment (FDI).

ADB comparative value relative to other development agencies in SNF includes the following.

- i. Regional focus.
- ii. Regarding membership, the percentage of donor and borrower ownership is more borrower-oriented.

⁴⁹ World Bank. 1999. *Evaluation Results for 1998: Issues in World Bank Lending Over Two Decades*. A World Bank Operations Evaluation Study. Washington, D.C.; World Bank. 2006. *Global Development Finance. The Development Potential of Surging Capital Flows*. World Bank. Washington D.C.

- iii. The strongest financial profile of any multilateral development bank (MDB).⁵⁰
- iv. A charter that allows for an unbiased view toward sovereign and nonsovereign operations and for socially and financially sustainable practices.⁵¹
- v. A long-term commitment even during challenging times (counter-cyclical).
- vi. The capability to include policy-based initiatives and reforms as well as capacity development activities as part of SNF solutions.

A significant number and range of private sector parties are seeking to undertake projects related to SNF. ADB should be well-positioned to assist with the delivery of projects that require policy or regulatory certainty to proceed, as well as to utilize the specialist capabilities of these organizations.

ADB should be able to provide a constructive role to facilitate institutional investment in SNF. Most major emerging infrastructure investors are based in ADB member countries: Australia, Canada, France, Germany, Italy, Sweden, the United Kingdom and the United States. ADB's

long-time horizons can provide comfort to both investors and host countries.⁵² At the same time, these investors are rapidly gaining experience in other parts of the world that may be applicable to Asia. Their expertise and experience in structuring transactions and monitoring projects would be valuable to ADB in its efforts not only to design and implement projects, but also to disseminate best practices throughout the region.⁵³ ADB's presence in transactions may add credibility and legitimacy to project sponsors. ADB itself has a large pipeline of infrastructure projects with which to work, and it can function as a natural "bridge" between developed countries, where potential investors are based, and developing countries, where projects are located. ADB has the rating and balance sheet strength to issue guarantees and assume project and political risks, and to participate as an anchor investor in both public and private transactions.⁵⁴ ADB has institutional knowledge related to political, economic, regulatory and administrative issues in DMCs, having dealt at all levels with DMC governments.

Client comparative value still includes national governments. It is important to recognize that commercialization does not mean that the public sector loses control over public goods and services. Rather, it adopts a set of new rules whereby it assumes the role of facilitator and regulator, based on its comparative advantage and ability to apply its leverage to achieve

⁵⁰ The Bank of England considered ADB to have one of the best, if not the best, system for financial control of all the MDBs, according to the Department for International Development's *Multilateral Effectiveness Framework Baseline Assessment* in 2004. Criteria included financial profile vis-à-vis financial gearing, portfolio and management systems reviewed in 2002–2004.

⁵¹ ADB. *ADB Charter*. Article 15.2.

⁵² John Olsen, the former premier of South Australia, who arranged numerous privatizations and complex infrastructure transactions, says: "To have an investment bank that really understands the regulatory and political issues we were confronted with was really helpful..." Source: "Aussie Upstart", *Barrons*. 7 August 2006.

⁵³ For an example of public-private "outsourcing" of traditional MDB processes and monitoring, see Sebastian Mallaby. 2004. "Chapter 13 - Back to the Future." *The World's Banker*.

⁵⁴ Cofinancing partners clearly value the benefit of ADB's AAA rating, as well as its privileged relationship with host governments. Some limited experience has already been gained with public-private risk-sharing partnerships in ADB's private sector operations. This includes a "guarantor-of-record" structure under the Phu My 2.2 power project in Viet Nam (2002), as well as risk-sharing and reinsurance agreements with the European Bank for Reconstruction and Development and Proparco under the Trade Facilitation Finance Program (2003).

the social objectives of government. In this regard, much of ADB's relevance in SNF relates to national government relationships and the membership structure of ADB. Member countries are represented from the central government and, hence, are at the core of systematic risk issues that capital markets use as overall benchmarks for investment decisions, as well as influencing "go" or "no go" decisions in individual projects. Capital is more likely to be provided to make critical investments if providers feel comfortable with the systematic risks associated with subnational entity investment.

With a clear understanding of these dynamics, ADB can selectively participate in appropriate SNF and form partnerships, while maintaining its long-held relationships with the centers of government as part of a common goal of delivering essential public goods for the people of Asia and the Pacific through development finance. Given the magnitude of the financing demand at the subnational level in the region and the experience to date with SNF, this segment appears to be an important area for future growth, albeit in defined and specific circumstances.

ADB DMC ESTIMATED ANNUAL INFRASTRUCTURE DEMAND

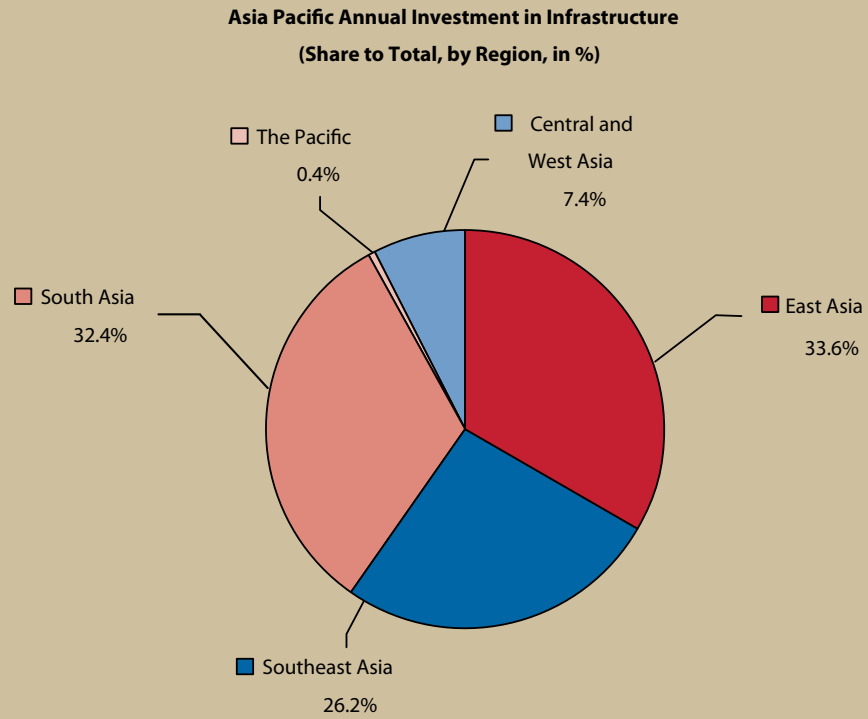
Region/DMCs	Country Classification by Income	GDP in billion \$	2003 Population (million)	
		2003	Total	Urban
Total		2,857	3,322	1,142
Central Asia and West Asia		151.140	235	85
Afghanistan	LIC	4.564	22	7
Azerbaijan	LMIC	7.276	8	4
Kazakhstan	LMIC	30.833	15	8
Pakistan	LIC	83.483	146	51
Others (Kyrgyz Republic, Tajikistan, Turkmenistan, & Uzbekistan)		24.984	44	15
Kyrgyz Republic	LIC	1.921	5	2
Tajikistan	LIC	1.554	7	2
Turkmenistan	LMIC	11.380	6	2
Uzbekistan	LIC	10.129	26	9
East Asia		1,417.875	1,295	499
China, People's Republic of	LMIC	1,416.600	1,292	498
Mongolia	LIC	1.274	3	1
Southeast Asia		610.394	538	211
Indonesia	LMIC	238.528	215	95
Malaysia	MIC	103.737	25	15
Philippines	LMIC	79.334	81	50
Thailand	LMIC	142.970	64	13
Viet Nam	LIC	39.552	81	21
others (Cambodia, Lao PDR, Myanmar)		6.273	72	18
Cambodia	LIC	4.140	13	3
Lao PDR	LIC	2.132	6	1
Myanmar	LIC		53	14
South Asia		669.729	1,246	346
India	LIC	592.497	1,068	301
Others (Bangladesh, Bhutan, Maldives, Nepal, & Sri Lanka)		77.232	178	45
Bangladesh	LIC	51.690	133	37
Bhutan	LIC	0.613	1	
Maldives	LMIC	0.691	0	
Nepal	LIC	5.992	24	3
Sri Lanka	LMIC	18.246	19	5
The Pacific		8.025	8	1
Fiji Islands	LMIC	2.319	1	
Papua New Guinea	LIC	3.753	6	1
Others (Cook Islands, Kiribati, FSM, Nauru, Palau, Marshall Islands, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Vanuatu)		1.952	2	0
Cook		0.139		
Kiribati	LMIC	0.057	0.100	
FSM	LMIC	0.222	0.100	
Nauru				
Palau	LMIC	0.117	0.020	
Marshall Islands	LMIC	0.105	0.010	
Samoa	LMIC	0.318	0.020	
Solomon	LIC	0.228	0.500	
Timor-Leste	LIC	0.341	0.800	
Tonga	LMIC	0.149	0.100	
Tuvalu				
Vanuatu	LMIC	0.277	0.200	

DMC = developing member country, GDP = gross domestic product, LIC = low income country, LMIC = low-middle income country,

Annual Total Demand, billion \$			Annual Total Demand, billion \$				
Total	Capital Investment	Maintenance	Total	National	Local	SOEs	Private
256	168	88	256	66	68	83	40
12.510	7.519	4.991	12.510	10.657	1.853		
1.066	0.651	0.414	1.066	0.918	0.147		
0.738	0.416	0.322	0.738	0.648	0.090		
1.341	0.756	0.585	1.341	1.167	0.174		
7.008	4.283	2.725	7.008	5.895	1.113		
2.357	1.414	0.944	2.357	2.030	0.328		
0.240	0.147	0.093	0.240	0.203	0.037		
0.317	0.194	0.123	0.317	0.279	0.037		
0.567	0.320	0.247	0.567	0.521	0.046		
1.234	0.754	0.480	1.234	1.027	0.207		
125.473	83.282	42.191	125.473	17.273	46.363	58.384	3.453
125.353	83.209	42.144	125.353	17.172	46.363	58.384	3.434
0.120	-0.073	0.047	0.120	0.102			0.018
42.188	24.124	18.064	42.178	10.243	5.698	16.330	9.907
19.350	10.904	8.446	19.340	3.660	3.780	7.140	4.760
2.430	1.369	1.061	2.430	0.404	0.252	1.774	
7.299	4.113	3.186	7.299	2.028	0.608	2.230	2.433
5.760	3.246	2.514	5.760	0.524	0.082	4.825	0.329
3.883	2.373	1.510	3.883	0.840	0.630	0.105	2.309
3.466	2.118	1.348	3.466	2.788	0.346	0.256	0.076
0.638	0.390	0.248	0.638	0.464	0.029	0.087	0.058
0.274	0.167	0.106	0.274	0.087	0.000	0.169	0.017
2.554	1.561	0.993	2.554	2.237			
75.578	52.799	22.780	75.578	27.108	13.893	7.905	26.672
66.216	-47.161	19.055	66.216	18.727	12.912	7.905	26.672
9.362	5.638	3.725	9.362	8.381	0.981		
6.403	3.913	2.490	6.403	5.589	0.814		
0.034	0.021	0.013	0.034	0.034			
0.027	0.015	0.012	0.027	0.027			
1.162	0.710	0.452	1.162	1.091	0.070		
1.737	0.979	0.758	1.737	1.640	0.097		
0.475	0.284	0.192	0.475	0.453	0.022		
0.072	0.041	0.031	0.072	0.072			
0.269	0.164	0.105	0.269	0.247	0.022		
0.134	0.079	0.056	0.134	0.134			
0.009	0.005	0.004	0.009	0.009			
0.009	0.005	0.004	0.009	0.009			
0.000	0.000	0.000	0.000	0.000			
0.009	0.005	0.004	0.009	0.009			
0.018	0.010	0.008	0.018	0.018			
0.024	0.015	0.009	0.024	0.024			
0.038	0.023	0.015	0.038	0.038			
0.009	0.005	0.004	0.009	0.009			
0.018	0.010	0.008	0.018	0.018			

SOE = state-owned enterprise.

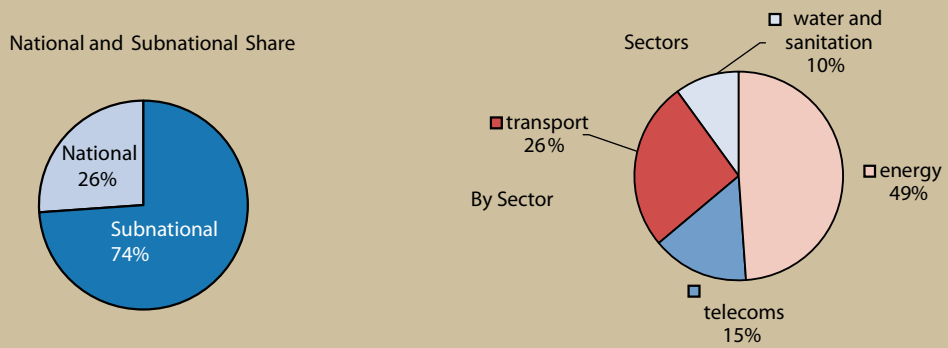
Figure A1.1: Annual Investment in Infrastructure in Asia and the Pacific By Region



Source: ADB Survey Team. 2006.

Figure A1.2: Annual Investment in Infrastructure in Asia and the Pacific By Sector

\$256 billion



Source: ADB Survey Team. 2006.

KEY INVESTORS AND CURRENT PRACTICE

A. The range of finance solutions and providers is evolving to meet needs

Finance from external sources outside the traditional realm of intergovernmental transfers includes both public and private actors. The financing of infrastructure draws on savings aggregated through the capital markets and banking systems, as well as public sector administered capital.⁵⁵ Subnational access to these external sources, especially private sources, is expanding. Infrastructure finance is drawn from an ever-widening pool of capital as investors of all types, from pension funds to hedge funds, converge on infrastructure. As traditional public-private partnerships (PPPs) and their participants have been well-documented elsewhere, this section of the survey focuses on these new infrastructure financiers and investor types with which ADB has had little experience, but which represent the future of infrastructure finance in a rapidly evolving and converging global market.

B. Public Sector Financiers

International public sector financiers include multilateral agencies such as ADB, the International Bank for Reconstruction and Development (IBRD), the European Investment Bank, the European Bank for Reconstruction and Development (EBRD), the Inter-American Investment Bank, the Islamic Development Bank and bilateral agencies such as the Australian

Agency for International Development, the United States Agency for International Development, Deutsche Investitions und Entwicklungsgesellschaft (DEG), the Netherlands Development Finance Company (FMO) and the Swiss Investment Fund for Emerging Markets. These agencies invest directly at the project and project sponsor levels in both debt and equity, and invest through investment funds and partnerships. These investments are usually grouped as official development assistance (ODA). Investment selection is generally driven by a combination of social, environmental and financial objectives, including seeking positive economic and social development impacts. The three largest financiers in ODA in Asia and the Pacific are ADB, the Japan Bank for International Cooperation (JBIC) and IBRD, which together account for 50% to 70% of the donor-financed urban infrastructure. Export credit agencies (ECAs) promote sales of national manufacturers (including equipment providers to large infrastructure projects and major construction and civil engineering companies) by underwriting and arranging finance for projects and project sponsors in host countries. Financing involving ECAs from members of the Organization for Economic Co-operation and Development (OECD) is slowing relative to the increasingly active ECAs from developing countries, notably the People's Republic of China (PRC).⁵⁶

Some multilaterals (such as EBRD, the European Investment Bank, the Inter-American Investment Bank and the Islamic Development Bank) have

⁵⁵ Public pools of capital include forced savings via taxes, state banks and ODA.

⁵⁶ While dramatic growth in developing countries has been a factor in their increased presence in the ECA business, the narrow range of local currency offerings by traditional (OECD) ECAs may play a role in their relative decline in DMC finance.

been able to engage at the subsovereign level without a government counter guarantee. While charter issues from both IBRD and the International Finance Corporation (IFC) stand in the way, both are trying to establish similar facilities.⁵⁷ Most multilaterals are able to provide partial credit guarantees, political risk insurance and partial risk guarantees. Instruments cited by MDBs as requiring more development include local currency lending and

liquidity backstopping to mitigate exchange devaluation risk.

According to reports of the World Bank group,⁵⁸ the overall commitment level of MDBs for infrastructure have declined somewhat since 1995, fluctuating between \$18 billion in 1996 and a low point of \$13.5 billion in 1999. These commitments had recovered somewhat to about \$16 billion in 2002, and some multilaterals

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In reality, the official sector has failed to keep pace with shifts in market

Development agencies find it hard to adapt with rigid politicized structures, mandates, processes and cultures. Growth in private sector finance has relegated ODA to a vastly inferior source of capital. There is an urgent need to reposition to focus comparative value relative to market risk capital and resources.

ODA agencies need a revolution in identity, functions and processes

Major changes in the culture, process and rules of development institutions.

Success will increasingly be measured by the market.

The market must perceive ODA services and transaction costs as competitive and attractive.

ODA agencies must transform identity, skills sets, culture and approach

From:

Historical role as lenders to sovereigns

Limited up-take of risk management services

Risk management guidelines that crowd out private sector

To:

Open intensive collaboration with private and subnational entities

Risk management in large easy-to-access quantities

Risk management responsive to market demand

⁵⁷ IBRD is prohibited from lending without sovereign guarantees and IFC is restricted (by both its charter interpretation and experience) in its lending to state-owned sponsors. IFC. 2001. "Memo." Washington DC. May.

⁵⁸ World Bank. 2006. *World Development Finance 2006*. Washington DC.

are expanding their support to infrastructure. Similarly, bilateral development aid declined from \$15 billion in 1996 to about \$8 billion in 2002, along with a decline in the relative share of infrastructure in total commitments from 27% to 14%. The issue, however, is that the numbers, even at their peak, are too small in relation to needs. Some analysts suggest that the “best that can be hoped for is a significant counter-cyclical effect, at least sufficient enough to offset swings in the expected contribution of the private sector, as well as to leverage funds from private sources.”⁵⁹ The primary issues for ODA agencies in light of the emerging demand for SNF was put forward at the World Development Forum meeting in October 2005. (See box below.)

Domestic public sector financiers of infrastructure finance include state-directed development finance institutions (DFIs) and state-owned banks. In general, DFI finance has not been successful, especially when compared with private or partially private alternatives.⁶⁰ While the trend in Asia and the Pacific is reduced state involvement in banking, the majority of infrastructure lending in PRC is from state-owned banks.⁶¹ Quasi-government equity funds, such as the Infrastructure Development Finance Corporation in India and PRC, have demonstrated some success with domestic infrastructure investments.

C. Private Sector Players

The private sector players depicting common traits are grouped below as follows:

(i) banks (international and domestic), (ii) portfolio

players (buy-side and sale-side), (iii) capital markets (domestic and global bond markets), and (iv) facilitators (corporate sponsors/civil engineers and financial engineers).

Banks are important intermediaries in developing capital markets. International commercial and investment banks provide the lion’s share of private financing worldwide for infrastructure investment. Large international commercial banks generally can make substantial loans directly from their own balance sheets. However, international commercial banks generally do not hold long-term loans until maturity. Typically, single loans are sold off to other banks while multiple complementary loans (e.g., to several infrastructure projects) are bundled into special purpose vehicles (SPVs), securitized and sold into the capital market. These techniques for packaging and on-selling loans have created an active secondary market in infrastructure and project loans attracting specialty hedge and credit funds which buy loans from banks with capital raised from nonbank clients such as pension funds (see below). The secondary market enables institutions to realize gains on loans (if interest rates decline or projects attain better credit ratings) and allows an investment bank to re-liquify its balance sheets and can originate more credits and fees.

Banks act as aggregators of savings and fiduciaries that are in a better position than individual savers to assess the credit of potential borrowers and service the loan once made. International banks are usually fee oriented when first entering the market and use a global

⁵⁹ Briceño-Garmendia, Estache, Shafik. 2004. *Infrastructure Services in Developing Countries: Access, Quality, Costs and Policy Reform*. Research Working Paper 3468. December.

⁶⁰ Based on ADB evaluation reports on DFIs, 1980s–1990s, and IBRD evaluation studies covering global cases from 1970s to the late 1980s.

⁶¹ This does not take into account the potentially significant level of informal financing.

network to bring capital and ideas together to finance viable projects. Both foreign and domestic banks have to maintain a balance between the duration of assets (loans) and liabilities (deposits). Given the relatively short-term nature of deposits, banks typically refrain from extending loans with tenors that match the longer-term requirements of infrastructure projects.⁶² In addition, legal and regulatory requirements often direct domestic banks to hold government securities.⁶³ In developing countries, domestic banks are often limited to government bonds when it comes to long-term lending. Finally, banks can and do act as facilitators for other financiers, as described below.

Portfolio players are the “institutional” investors such as pension funds, insurance companies and their interlocutors, active money managers, institutional brokers and investment banks and specialist funds managers. This group has more assets under management than all the other private sector players, and they are increasing their exposure to direct investment in infrastructure.

Pension funds and life insurance companies have long investment horizons of up to 25 to 30 years. They seek steady and predictable returns to meet their liabilities to future retirees.⁶⁴ Today, these needs are motivating pensions

and life companies to invest in infrastructure to achieve the duration of long-term bonds or quasi-permanent indexed stock market holdings, but with the additional promise of higher returns than either. Institutional investors tend to focus on a subset of assets called “preferred infrastructure.”⁶⁵ These assets are characterized by having highly predictable earnings, steady cash flow and long duration. Stability of earnings and cash flow is a function of the maturity of a project’s life cycle and the systematic risks in the enabling environment due to regulatory and legal prohibitions that are not conducive to global portfolio techniques, such as modern portfolio theory (MPT). Therefore, domestic pensions are largely blocked from infrastructure investments. According to United Nations estimates, Asia generates about \$200 billion in annual “excess savings.”⁶⁶ Much of this is currently locked up in institutional portfolios with limited choices.

Significant investment in infrastructure, including infrastructure funds, by portfolio players has not as yet played a prominent role in Asia and the Pacific. However, several large funds have been active in Asian private equity for a number of years and several purpose-specific Asian infrastructure funds have been established. Many of these investors have previously migrated to Asia and the Pacific seeking geographical diversification as well as

⁶² The revised Basel II Capital Accord for banks increases the emphasis on risk weightings for credit extended by commercial banks, which has an impact on their willingness and ability to provide long-term finance. Basel Committee on Banking Supervision. 2004. *International Convergence of Capital Measurement and Capital Standards: A Revised Framework*. Basel.

⁶³ In the Philippines, for example, the central bank reduced the risk weight assigned to local government obligations (in 2003) that are backed by an intercept of their internal revenue allotment and guaranteed by the Local Government Unit Guarantee Corporation from 100% to 50%. This in effect made them more attractive to the local banking community.

⁶⁴ This is particularly true of “defined benefit” plans, which have fixed liabilities as they contract with their member beneficiaries to pay a fixed percentage of their final salary as a retirement benefit. Defined benefit plans comprise 81% of the largest 200 US pension funds. The remaining 19% are defined contribution plans, where payouts depend on investment returns and which can be more flexible in their portfolio structures. (Source: Norges Bank. *Management of Large Foreign Funds*. www.norges-bank.no).

⁶⁵ Figures A3-4 illustrate where preferred infrastructure falls in the range of risk and return compared with other major asset classes that make up the bulk of the typical institutional portfolio.

⁶⁶ United Nations ESCAP. 2006. *Enhancing Regional Cooperation in Infrastructure Development Including that Related to Disaster Management*. Bangkok. For more information see Figure A3-5 for a comparison of domestic versus global portfolio choices.

absolute returns (primarily in listed securities).⁶⁷ The lack of volatility in listed exchanges and moves by portfolio players into infrastructure have prompted hedge funds to enter the fray with shorter-term goals and methodologies which may include private investment in publicly listed entities that offer arbitrage opportunities, leveraged buyout of listed utilities or specific assets of these utilities that can be flipped to institutions, as well as short sales of “overpriced” exchange listed infrastructure funds.

Capital markets are domestic and global. Emerging markets have been part of the global investor menu for some time. However, these markets historically have offered few opportunities to investors seeking stable cash flows over the long term (seven years or more). Domestic bond markets are often small, have few participants, and are easily overwhelmed by the demands of the national government and the banking system. A recurring theme is the difficulty that markets have in accommodating national governments’ long-term borrowing needs with relatively limited investible funds and the short-time horizons of investors (especially where the visibility of future stability is low).⁶⁸ Yet investor interest in subnational debt is increasing and local currency bond markets are the fastest-growing segment of emerging market debt. This signifies some success by DMCs in responding

to the financial crises of the 1990s. From a global perspective, local currency bond markets in emerging economies are still relatively small, accounting for about 8% of the global domestic debt market (as of 30 September 2005)⁶⁹. Local emerging currency bond markets are concentrated in eight countries representing 75% of the volume worldwide, including five ADB member countries: India, the Republic of Korea, Malaysia, PRC and Turkey.⁷⁰

The global capital markets comprising equity, government and corporate debt securities, and bank assets (traded corporate and government debt securities⁷¹ as well as bank loans) are estimated to total \$118 trillion.⁷² A general survey of preferences suggests that the US and Europe place a greater emphasis on bonds and equity than on bank debt. In comparison, PRC and India rely primarily on bank versus bond debt. In Japan, bond markets are relatively large but dominated by government rather than corporate issues. National (sovereign) government securities, issued in large volumes and offering relatively low-risk returns in the local context, often absorb most of the supply of international investment funds. Ideally, longer-term funds should be forthcoming from institutions with long-term liabilities (e.g., pension funds and insurance companies). While emerging market economies have embarked on

⁶⁷ As the markets and economies of Asia and the Pacific evolve, these institutions can be expected to shift asset allocations through channels that may include private equity funds, specialty infrastructure funds, and direct investments in the equity and debt of project entities, acquisitions of long-term credits from banks and participation in securitizations of infrastructure cash flow, and take-private transactions, including privatizations of public sector assets and bids for listed infrastructure corporations.

⁶⁸ The most liquid assets in capital markets are savings and listed marketable securities held by brokers, pension plans, banks, and insurance companies. These institutions generally invest through intermediaries such as asset managers, mutual funds, and investment banks, but some of the largest pension funds and insurance companies also have internal portfolio and asset management functions. In all cases, they are under pressure to deploy their liquidity into productive assets with minimum administrative friction. For more details, see (Appendix 3: Infrastructure Finance: Current and Emerging Trends)

⁶⁹ The other three countries are Brazil, Mexico and South Africa. Source: World Bank. 2006. *World Development Finance 2006*. Washington DC.

⁷⁰ bid.

⁷¹ Public and private debt securities include shorter term maturity bills and notes as well as bonds. The entire category will be referred to herein as “bonds.”

⁷² 2005. “Mapping the Global Capital Markets.” *The McKinsey Quarterly*. 2005 Special Edition.

programs to promote these long-term investing institutions, progress has been slow and barriers daunting.⁷³

Facilitators act to create and execute transactions at both project and finance levels. Corporate sponsors are sector experts and operators who bring sector knowledge and finance (increasingly equity) to the deal. These corporate sponsors are closest to the design and operation of infrastructure assets. Many also act in partnership or relationship with private sector infrastructure investment organizations and funds. These emerging financiers and operators are critical players, if not the most critical, for Asia and the Pacific in the future. They include construction and civil engineering firms, toll-road operators, utility operators and other corporate investors which are already active in other parts of the world, but will look to Asia. The portfolio players are driving all participants to “put money to work” rather than move it to yet another fund waiting to become fully invested. Therefore, corporate sponsors are currently in great demand by investment banks and even pension funds seeking to remove their biggest bottleneck: committing funds to operating infrastructure assets. For ADB and Asia and the

Pacific, these corporate sponsors represent potential comparative value that needs to be recognized and cultivated.⁷⁴

Financial engineers are the innovators of financial products that help expand the markets for finance. Many areas of finance have adopted what are generically referred to as “derivatives.”⁷⁵ Derivatives have helped broaden financial markets with the ability to isolate risk and return patterns and satisfy specific investor preferences. Examples of financial facilitators and innovations that have an impact on emerging market finance include (i) mono-line insurers that act as credit guarantors and enhancers of bonds; (ii) credit default swaps that provide insurance against defaults; and (iii) risk pools that effectively combine small utility assets into pools to reduce costs via economies of scale, and achieve a critical mass in deal size that can attract institutional investors. With bond insurance being applied in new ways by new players in emerging markets, transferring bank loan credit risk to other market participants with credit default swaps has altered the traditional approach to credit risk management and the lending business.

⁷³ Several reasons for this include i) any pool of domestic long-term capital is generally sought by the national government and the banking system, ii) foreign investors may be circumspect about making long-term investments in the local currency, iii) raising long-term funds is difficult in countries that lack the liquidity provided by an active secondary market, and iv) systemic risk.

⁷⁴ PRC provides examples of progress and impediments. While it is adopting current practice in energy and roads, water projects are mostly confined to state-sponsored design institutions which have been cited as a factor in suboptimal results in that sector. (Interview with CEO CMD2. *Asia Today*. June 2006).

⁷⁵ The name “derivative” signifies the fact that these instruments derive their value from the value of another asset (that has its characteristics isolated, unbundled and reconstituted to satisfy refined appetites for liquidity and risk).

INFRASTRUCTURE FINANCE: CURRENT AND EMERGING TRENDS

Infrastructure lessons from the 1997-1998 crises brought a critical rethinking of SNF and private participation in infrastructure. The commercial rationalization of infrastructure projects brought out into the open the costs that had been hidden within the state apparatus.⁷⁶ There is now a greater understanding as to how many of the affected projects allocated risk in ways that left parties (public and private) unnecessarily exposed to risk (primarily currency and tenor mismatches). Private sector partners and DMCs are now more cautious and mindful of the need for proper frameworks and the real cost of government subsidies that must be accounted for in any project, be it private or public.

Recent gains in private capital flows have been supported by financial innovations, notably local currency financing and structured financial instruments such as credit default swaps and other derivatives, which have improved the ability of investors to manage their exposure to the risks associated with emerging market assets.

A. Foreign Direct Investment Capital Flows⁷⁷

Net capital inflows from official and private sources increased from \$418 billion in 2004 to \$472 billion in 2005. While net official lending was negative, net flows of private capital to developing countries swelled for the third consecutive year, reaching \$491 billion in 2005, the highest level on record. Demand for emerging market debt and equities, spurred by improved fundamentals in many developing countries and investors' search for

higher yields, have remained strong. Developing countries' finances also received a boost from workers' remittances, which continued their steady increase of the past decade.

Two booms in capital flows raise the question of what has changed in the past decade. The recent surge in capital flows to developing countries differs substantially from the previous episode in the mid-1990s. Greater global economic and financial integration, improved domestic macroeconomic fundamentals, and sounder domestic policies and institutions have enhanced the capacity of policy makers to deal with infusions of private capital. Compared with the situation in the 1990s, many developing countries today have significantly lower external debt burdens, fewer currency mismatches in their debt structures, higher reserves of foreign exchange, more flexible exchange rate regimes, and more open capital accounts.

The pattern of private capital flows has changed in two important respects. First, the share of short-term debt in total debt flows has declined for virtually all major debtors, particularly in crisis-affected countries. Second, the composition of flows has rotated toward equity, particularly foreign direct investment (FDI). The shift toward equity reflects government policies that encourage equity and aim to reduce dependence on external borrowing. Thus, on average, FDI accounts for 57% of private capital flows to developing countries. This figure is significantly higher than portfolio equity (9%) and short and long-term bank debt (33%). In the mid-1990s, by contrast, the figures were

⁷⁶ World Bank. 2004. *Public Policy for Infrastructure*. World Bank Note 274. September.

⁷⁷ Sources include World Bank. 2006. *World Development Finance 2006*. Washington DC. and ADB. 2006.

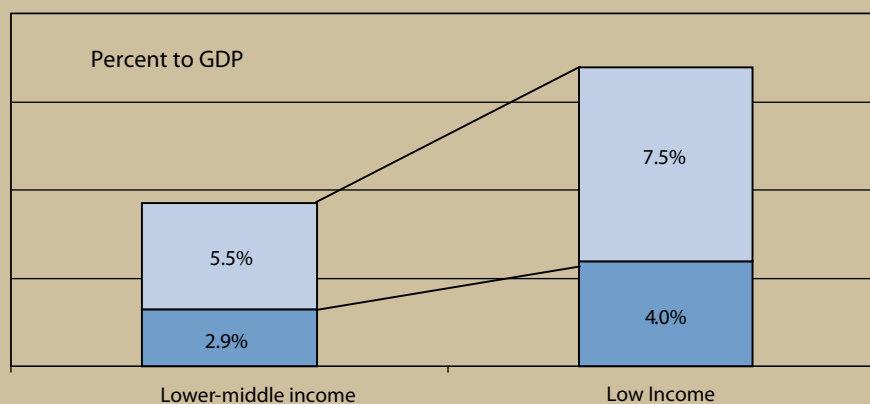
47% for FDI, 11% for portfolio equity and 42% for debt.

Freedom of movement of capital is growing via (i) the easing or removal of quantitative restrictions on residents' issuance of securities (including debt) and outward FDI by private resident entities, (ii) the relaxation of limits on nonresidents' access to local money and securities markets, and (iii) the reduction or elimination of taxes on capital account transactions. In Malaysia and Thailand, approved domestic institutional investors may now invest up to 10% of their assets abroad. In the Republic of Korea, residents are encouraged to invest in overseas mutual funds to mitigate the impact of foreign inflows. In India, new measures have relaxed overseas investment restrictions on banks and mutual funds, allowing banks to invest in money market and debt instruments abroad. Indian international investments have increased from \$500 million to \$1 billion, the limit on mutual funds' investments in companies listed abroad.

Financial integration has increased among developing countries as the global economy has become more integrated. Developing countries have emerged as important sources of capital flows. In the past decade, with rising incomes in developing countries and increasingly open policies toward trade and financial markets, developing countries have become a significant source of FDI and bank lending.

A number of estimates have shown that the difference between required investment and actual investment is large. Using techniques developed by the World Bank, the actual investment of ADB DMCs is estimated to be 4% of regional GDP for low-income countries and 2.9% for lower-middle income countries. For needed infrastructure expenditures, the estimate was for 7.5% of regional GDP for low-income countries and 5.5% for lower-middle income countries. (See Figure A3.1.)

Figure A3.1: Annual Expenditures on Infrastructure as Share of 2003 GDP (Actual versus Needed 2003)



	Actual	Needed
Low income countries	4.0%	7.5% - 9.0%
Middle income countries ¹	2.9%	5.5% - 7%

¹ Malaysia is included in middle-income countries

■ Actual □ Needed

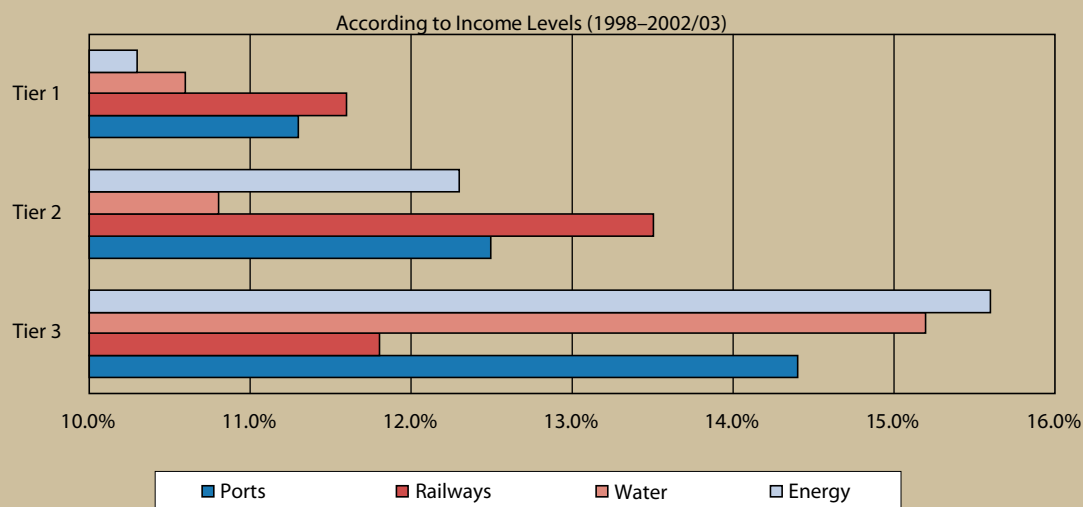
Source: World Bank. 2004; Briceno-Garmendia, A. Estache, N. Shafik 2004; ADB Survey Team. 2006.

For the infrastructure sector, the cost of capital in emerging markets between 1998 and 2002 varied from less than 11% to more than 15% across regions and sectors, while the cost of equity varied from about 13% to more than 22%. The cost of capital by sector is depicted in Figure A3.2. A snapshot review indicates that not only is the need for infrastructure finance capital highest for tier 3 countries, but the cost of capital is also significantly higher. For example, the cost of energy borrowing for tier 3 countries is about 30% and 50% greater than for tier 1 and tier 2 countries, respectively. Incongruently, the only sector where tier 3 borrowers have a lower weighted average cost of capital than tier 1 and tier 2 borrowers is the railway sector. One reason for this may be that most railway borrowing is undertaken by the sovereign or is heavily subsidized by grant or intergovernmental transfers.⁷⁸

Innovations in sustainable infrastructure are producing effective solutions, potentially lowering costs of capital investment and O&M. For example, toll roads have often lost out in the choice between more equitable user-pays models and the bottleneck in traffic flows from toll booth stops. In effect, these delays negated the rationale for superhighways.⁷⁹ Today, these bottlenecks have been practically eliminated with the radio chip (or RFI) technology that allows travelers to pass through “virtual toll booths” without delay and to pay for the service without stopping.

The new automated toll roads are bringing market practices into highway service, for example, by charging higher tolls at peak times than at off-peak times. More revenue is made this way. The time saved by using a free-flowing

Figure A3.2: Estimated Weighted Average Cost of Capital



Source: Estache and Pinglo 2004.

⁷⁸ These calculations are based on assumptions related to MPT and actual financial statements (such as they are) of 120 companies put together to track the evolution of the cost of capital, the cost of equity and the return to equity for electricity, water and sanitation, railways and port operators in 31 developing countries (distributed evenly across low-income, low-middle-income and upper-middle-income countries. See Estache and Pinglo. 2004. *Are Returns To Private Infrastructure In Developing Countries Consistent With Risks Since The Asian Crises?* August. World Bank.

⁷⁹ Traffic-flow delays provided ostensible reasoning for the politically popular “freeing” of hundreds of toll roads in the US in the 1970s. Many such roads have since been re-privatized using RFI technology, including the Chicago ring road that just sold in a record 40-year tenor securitization deal.

toll road is much greater in rush hours than in non-rush hours, so motorists are prepared to pay more at that time. Variable pricing makes business sense, too. Highways can operate much more efficiently if some motorists can be persuaded to defer their trips to times when there is spare capacity, or to use mass transit or car pools. Variable tolls are thus a powerful tool for increasing transport productivity. They can be used to prevent backups and the resultant frustration, pollution, energy use, wasted time and accidents that accompany under priced or fixed-price roads.

Mobile phone investment costs have been reduced dramatically by technological advances in “first and last mile” construction and signal delivery systems. In addition, the revolution in electronic banking is transforming the provision of banking services to remote areas and extending the reach and sustainability of microfinance institutions. Advances in composite materials and nanotechnology can simplify repair methods and lower the cost of O&M and materials used in rehabilitation of existing infrastructure.

B. Market for Infrastructure Finance

Historically, emerging markets have offered few opportunities to domestic or international investors seeking stable long-term securities. Both institutional and individual investors look at the trade-offs between risk and return, as well as liquidity. The trade-offs can be very steep in the case of a domestic securities market in a

developing economy. Since 1997, investors have been understandably reluctant to make long-term bets in Asian currencies subject to wide fluctuations, although they are beginning to return.

National (sovereign) government securities, issued in large volumes and offering relatively low-risk returns in the local context, often absorb most of the supply of international investment funds. In addition, legal and regulatory requirements for banks and other financial institutions often direct them to hold government securities.⁸⁰ Due to the short-term nature of their liabilities (deposits), banks have relatively high liquidity requirements. This means that they are not in a position to make loans for more than a few years without a potential mismatch. Ideally, longer-term funds should be forthcoming from institutions with long-term liabilities (e.g., pension funds and insurance companies). While emerging market economies have embarked on programs to promote these long-term investing institutions, progress has been slow and barriers daunting.⁸¹

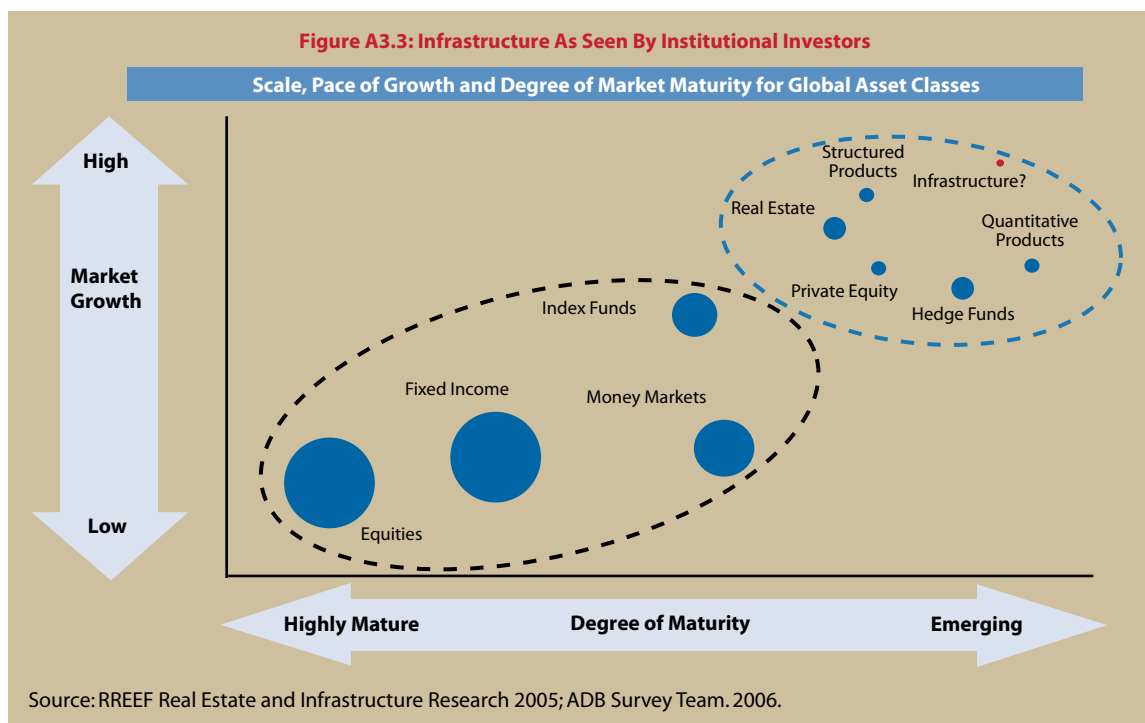
The financing of infrastructure and public goods draws not only on the savings pooled through the capital markets and banking systems, but also on public-sector-administered pools of capital. (See Figure A3.3.)⁸² The relative importance of these public and private-funding sources with respect to financing infrastructure varies from country to country. From 1992 to 2003, an estimated \$622 billion was invested globally in developing country infrastructure.⁸³ Of this total, 45% or \$280 billion was invested in

⁸⁰ In the Philippines, for example, the central bank reduced from 100% to 50% the risk weight assigned to local government obligations (in 2003) that are backed by an intercept of their internal revenue allotment and guaranteed by the Local Government Unit Guarantee Corporation. This in effect made them more attractive to the local banking community.

⁸¹ Several reasons for this include (i) any pool of domestic long-term capital is generally sought by the national government and the banking system, (ii) foreign investors may be circumspect about making long-term investments in the local currency, (iii) raising long-term funds is difficult in countries that lack the liquidity provided by an active secondary market, and (iv) systemic risk.

⁸² Public sector pools of capital include forced savings via government taxes, state banks and ODA.

⁸³ World Bank. 2005. *Global Development Finance 2004*. Washington DC. 149.



the Asia and Pacific region. About 22% of total infrastructure investment spending over this period came from private sector investments, 70% came from the public sector pool of capital, and 8% from ODA sources. Of an estimated \$62 billion in private sector infrastructure financing completed in the first half of 2006, bank loans totaled \$43 billion (70%), equity funding equaled \$13 billion (20%) and bond issuances accounted for \$6 billion (10%) of total infrastructure financing.⁸⁴

The high level of interest and sheer size of finance sources suggest that, in many ways, the “gap” is not a financial one as much as a “capacity gap.” If properly prepared, ADB could play a comparative value role in this environment.

The evolution into internationally diversified alternative asset classes has paid off handsomely for many institutional investors. Institutions that have diversified into emerging market

infrastructure finance have enjoyed higher risk adjusted returns than those that have stayed at home in listed stocks and bonds. Clearly, if this trend continues, these funds could provide a significant level of infrastructure financing for the Asia and Pacific region.

Institutional investors tend to focus on a subset of asset class called “preferred infrastructure.” These assets are characterized by having highly predictable earnings, steady cash flow and long duration. Stability of earnings and cash flow is a function of the maturity of a project’s life cycle and the systemic risks in the enabling environment. Figure A3.4 illustrates where preferred infrastructure falls in the range of risk and return compared with other major asset classes that make up the bulk of the typical institutional portfolio: cash and near-cash (e.g., treasury bills); fixed-income securities such as corporate and government bonds; listed equities; and unlisted equities such

⁸⁴ 2006. “First Half Review: Bond Financing.” *Infrastructure Journal*. 3 August. (Bond issue figures include initial financing, refinancing, structured products and securitizations of infrastructure cash flows.)

as private equity, venture capital and hedge funds.

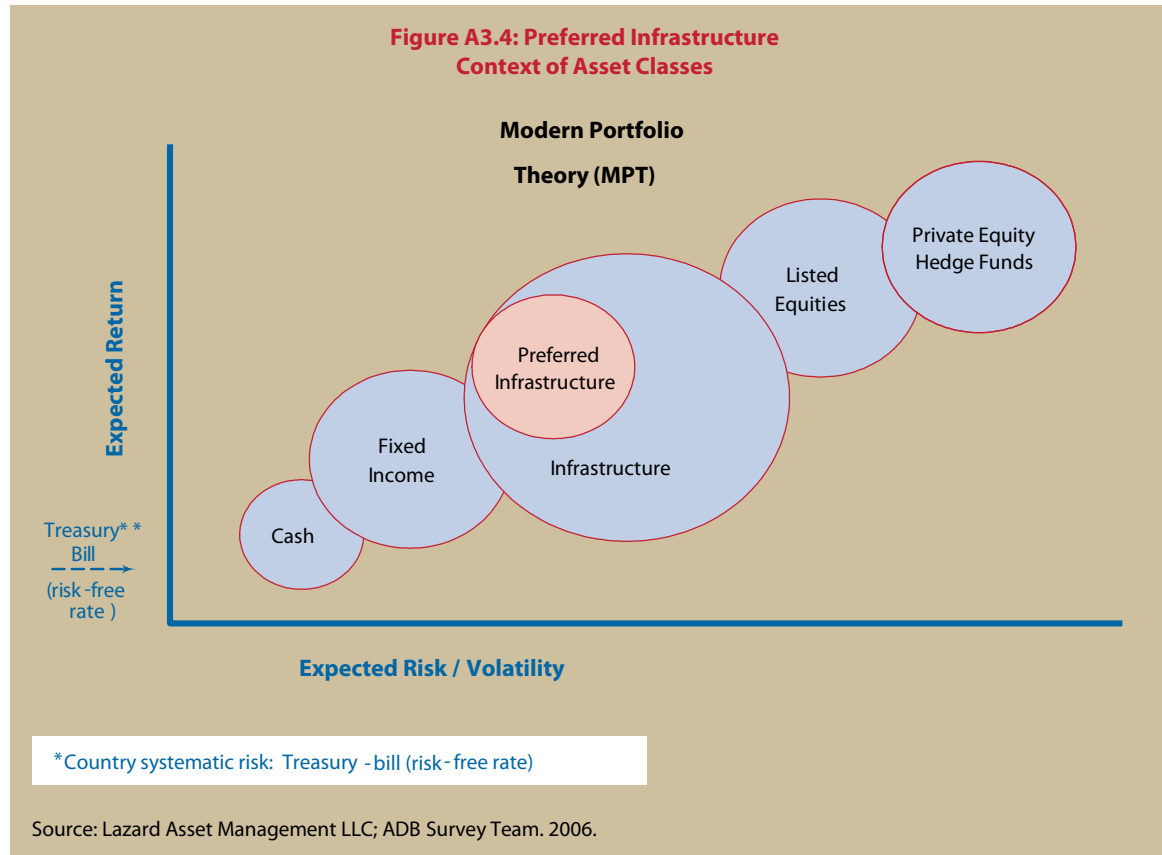
Preferred infrastructure means mature projects operating with a high degree of revenue certainty under protected or monopoly conditions, lying between fixed income and equity securities in terms of risk and return. Preferred infrastructure is seen as being slightly riskier than bonds, but with returns on a par with the more risky listed equities. In other words, preferred infrastructure achieves equity-like returns with bond-like cash flow characteristics.

To take advantage of these opportunities, institutional funds in Australia, Europe and North

America are beginning to invest in emerging-market infrastructure. Leading funds even custom-tailor their own infrastructure investments. For example, with 40% of its \$33 billion assets in alternative investments and 38% of that in infrastructure, the Ontario Municipal Employees Retirement System Fund in Canada has established an investment management subsidiary, Borealis Infrastructure, to place and manage its funds in the developing country market. Many of the largest investment funds are just venturing out into infrastructure financing opportunities in Asia.⁸⁵

A protracted period of historically low bond yields and similarly lower returns from the listed equity markets has prompted investors to seek

Figure A3.4: Preferred Infrastructure Context of Asset Classes

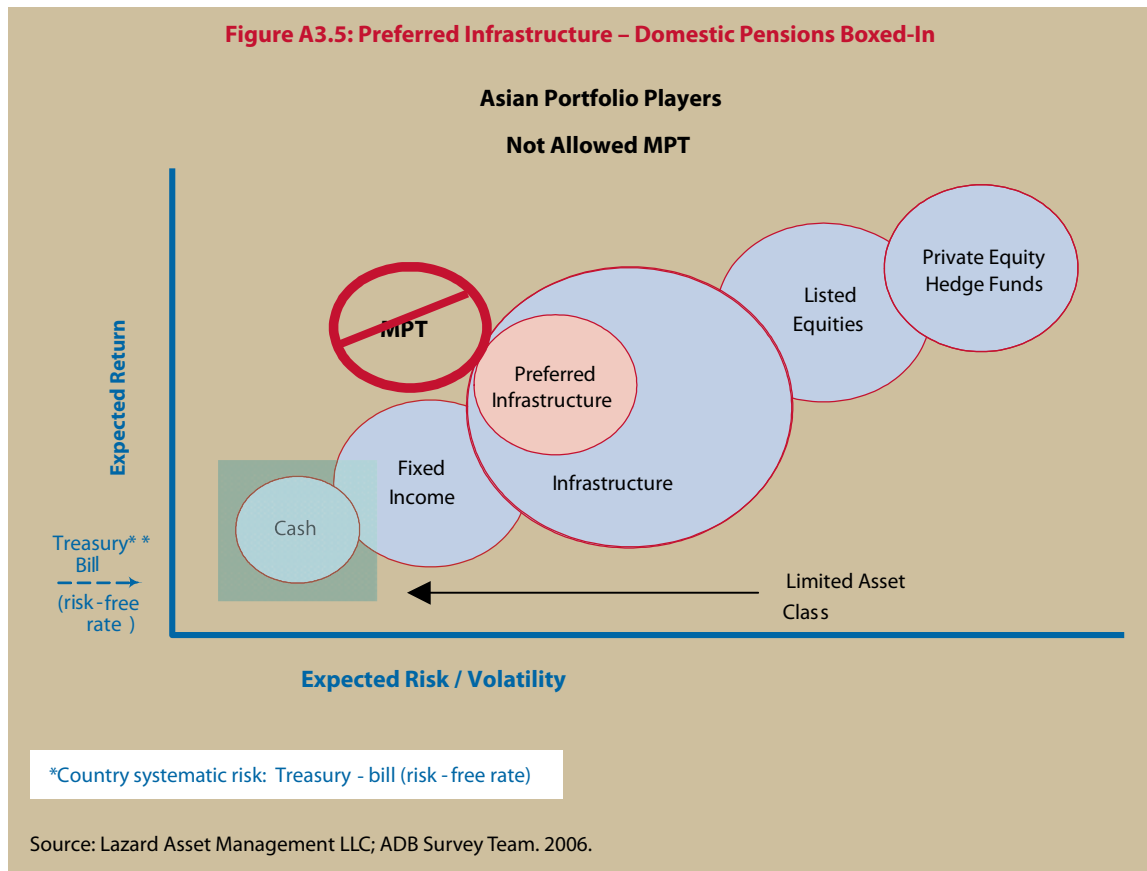


⁸⁵ Public and private-sector pension and superannuation funds in Australia, Europe and North America already rank among the largest current infrastructure investors, but the potential for attracting further funding from that sector is enormous. Several large funds have, in 2006, added infrastructure to their “alternative investment” allocations, but did not plan to make investments until 2007.

alternatives to their traditional asset classes. As regulations governing North American and European institutional investors have become more relaxed, pension funds and insurance companies diversified first into major markets⁸⁶ for equities and bonds, then into emerging markets. This provided diversification and potential for negative correlation with the home markets against which they tended to be benchmarked. At the same time, investors sought diversification away from market-traded securities into less-liquid “alternative assets”, a category comprising a range of nontraditional investments such as venture capital, private equity, real estate, timberland,⁸⁷ hedge funds and other long-duration unlisted assets.

Where are the domestic pension fund investors? Domestic pension fund investors are natural long-term infrastructure investors and are not deterred by perceived political or currency risks to the same extent as international investors. Currently, most pension plans in Asia and the Pacific are not allowed to invest outside of narrowly defined asset classes. These investments are primarily sovereign debt instruments and, to a lesser extent, state government bonds. Although the constraint on capital exit is easing, domestic pensions remain mostly confined to government obligations. (See Figure A3.5.) Many domestic pension fund investors are prevented from adopting risk mitigation

Figure A3.5: Preferred Infrastructure – Domestic Pensions Boxed-In



⁸⁶ Investing in an indexed equity fund reflecting the 20+ Morgan Stanley Capital International constituent markets was a common initial first international step in the 1980s to 1990s.

⁸⁷ By the mid-1990s, the California Public Employees' Retirement System, the second-largest pension fund in the US, had become the US's largest owner of forests.

techniques to manage more effectively their liquidity at the medium and long-end of the yield. However, PRC, through recent legislation, is encouraging its four state-owned insurance companies to allocate capital to infrastructure deals. From ADB's vantage point, domestic institutions remain a largely untapped market for local currency financing.

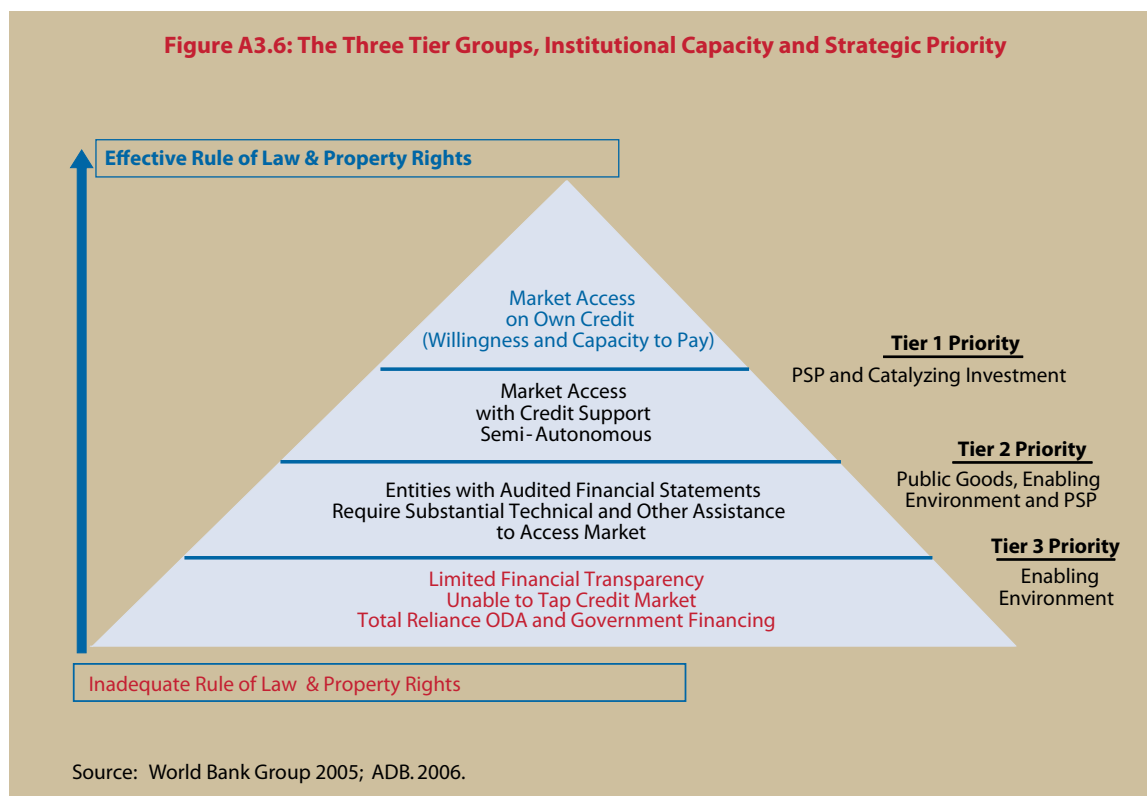
The Collateralized Debt Obligations Market in PRC and Asia⁸⁸

Market Drivers. While the PRC bond market is shallow on a relative basis, in absolute size it is one of the largest bond markets in the region. Although its domestic bond market (\$552 billion as of June 2005) is smaller than that of the Republic of Korea (\$600 billion), it is much bigger than domestic bond markets in Malaysia (4.5 times), Singapore (6.6 times), Thailand (7.3

times), Indonesia (8.4 times) and the Philippines (19 times). Although funds invested in PRC's bond market are concentrated in holdings of government securities, they nevertheless represent substantial buying power that could support a sizable collateralized debt obligation market when the Government liberalizes activities related to collateralized debt obligation.

Underdeveloped Financial Markets. On a relative basis, PRC's bond and equity markets lag those of most mature markets and many emerging markets in breadth (diversity) as well as depth (relative size). The capitalization of its stock markets is roughly 40% the size of its GDP while its bond markets are some 30% of GDP. In comparison, the figures are 130% and 164% for the US, 80% and 83% for Japan, 161% and 93% for Malaysia, 57% and 81% for the Republic of Korea, and 56% and 35% for India.

Figure A3.6: The Three Tier Groups, Institutional Capacity and Strategic Priority



⁸⁸ Fitch Ratings. 2006. *Opportunities and Challenges*. 10 October.

C. Strategic Compatibility of Subnational Finance

SNF is not an end in itself. Ideally, it should be used to obtain long-term capital for investments that provide benefits now and into the future. Facilitating SNF complements the wider development agenda of economic reform, capacity development and sustainability. These infrastructure services are critical to helping people better their lives, especially the less fortunate. SNF allows ADB to encourage the participation of the private sector in key services and pave the way for successful delivery to end users. The process will also allow governments to reduce their financial transfers to these clients, thereby creating fiscal space and releasing resources for other requirements.

The new private sector development framework⁸⁹ provides strategic guidance on many aspects of SNF. The framework fits the stylized groupings (See Figure A3.6) from the three tier groups discussed in Section II as follows: tier 1 focuses on introducing best practice or scaling up and supporting existing policies and programs; tier 2 focuses on leveraging private sector finance, promoting public goods and services, and sustainability with private participation; tier 3 focuses on an enabling policy and institutional environment and opening the door to investment. These three thrusts overlap and complement each other in terms of impact and internal delivery. Coordination and cooperation at the operational level is critical to implementation. Ongoing efforts by ADB staff and management have demonstrated progress as each SNF concept approved has been a joint effort of ADB's regional departments and private sector operations department.

⁸⁹ ADB. 2006. *Private Sector Development: A Revised Strategic Framework*. Manila.

Market Survey of Subnational Finance in Asia and the Pacific

Encouraged by decentralizing national governments, the development and financing of projects by subnational public sector entities is expanding in the Asia and Pacific region. The work undertaken for this report focused on infrastructure and utilities as a proxy for the magnitude of financial demand by subnational entities in Asia and the Pacific. The increasing role of subnational entities in providing infrastructure is driven by underlying trends of decentralization, sustainability and urbanization. Research over the past two decades indicates high returns and significant contributions to economic growth from infrastructure investment. The debate over who should be responsible for infrastructure investment decisions has prompted shifts in government policy, public attitudes and intellectual discourse. Twenty-five years ago, the state controlled infrastructure services in virtually all developing countries through ownership of vertically integrated utilities and other infrastructure entities. Today, there is a discernable trend of infrastructure service delivery being decentralized to subnational government and private entities. No matter how infrastructure services are being delivered, the value judgment that ultimately matters is made by the purchaser and consumer of these services. In this sense, infrastructure demand is and has always been decentralized.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries substantially reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two thirds of the world's poor. Nearly 1.7 billion people in the region live on \$2 or less a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance. In 2007, it approved \$10.1 billion of loans, \$673 million of grant projects, and technical assistance amounting to \$243 million.

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6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org
Publication Stock No. BBK104408
ISBN No. 978-971-561-692-8



Printed in the Philippines