Evaluation Study

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ADB Assistance for Public-Private Partnerships in Infrastructure Development–Potential for More Success

Independent Evaluation Department

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 30 June 2009)

Currency Unit	–	Indian rupee/s (Re/Rs)
Re1.00	=	$0.0208
$1.00	=	Rs48.1050

Currency Unit	–	Pakistan rupee/s (PRe/PRs)
PRe1.00	=	$0.0123
$1.00	=	PRs81.4000

ABBREVIATIONS

ADB	–	Asian Development Bank
BII	–	Bureau of Infrastructure Investment
BOO	–	build-own-operate
BOT	–	build-operate-transfer
CA	–	concession agreement
CFS	–	complementary financing scheme
CPS	–	country partnership strategy
DEA	–	Department of Economic Affairs
DMC	–	developing member country
EIRR	–	economic internal rate of return
EPIRA	–	Electric Power Industry Reform Act
EVN	–	Electricity of Viet Nam
FIRR	–	financial internal rate of return
GEM	–	Generale des Eaux-Marubeni Waterworks Company
GIDB	–	Gujarat Infrastructure Development Board
GDP	–	gross domestic product
ICICI	–	Industrial Credit and Investment Corporation of India
IED	–	Independent Evaluation Department
IFC	–	International Finance Corporation
IDFC	–	Infrastructure Development Finance Company
IFI	–	international finance institution
IIFCL	–	India Infrastructure Finance Company Limited
IPP	–	independent power producer
IRSDP	–	Infrastructure Reform Sector Development Program
JCT	–	Jaya Container Terminal
HCMC	–	Ho Chi Minh City
KESC	–	Karachi Electric Supply Corporation
Lao PDR	–	Lao People's Democratic Republic
LGU	–	local government unit
MOF	–	Ministry of Finance
MRG	–	minimum revenue guarantee
MRT	–	mass rail transit
MW	–	megawatt
NHA	–	National Highway Authority

NLC	–	National Logistics Cell
NPC	–	National Power Corporation
NRW	–	nonrevenue water
NTHS	–	National Trunk Highway System
O&M	–	operation and maintenance
OGC	–	Office of the General Counsel
PBMC	–	performance-based management contract
PCR	–	project completion report
PDF	–	Project Development Facility
PFI	–	private finance initiative
PLN	–	PT Perusahaan Listrik Negara
PNR	–	Philippine National Railways
PPA	–	power purchase agreement
PPER	–	project performance evaluation report
PPI	–	private participation in infrastructure
PPP	–	public-private partnership
PR	–	Pakistan Railways
PRC	–	People's Republic of China
PSC	–	public sector comparator
PSIF	–	Private Sector Infrastructure Finance Division
PSOD	–	Private Sector Operations Department
PSP	–	private sector participation
PTSS	–	Philippine Transport Sector Strategy
RD	–	regional department
RDA	–	Road Development Authority
RRP	–	report and recommendation of the President
RSDD	–	Regional and Sustainable Development
SAGT	–	South Asia Gateway Terminals (Private) Limited
SES	–	special evaluation study
SLPA	–	Sri Lanka Port Authority
SLR	–	Sri Lanka Railways
SOE	–	state-owned enterprise
TA	–	technical assistance
TEU	–	twenty-foot equivalent units
UK	–	United Kingdom
VFM	–	value for money
VGF	–	viability gap funding
VNR	–	Viet Nam Railways
WSS	–	water supply and sanitation
WWW	–	water and wastewater

NOTE

In this report, "$" refers to US dollars.

Key Words
asian development bank, assistance, public-private partnership, infrastructure development

Director General	H.S. Rao, Independent Evaluation Department (IED)
Director	R.B. Adhikari, Independent Evaluation Division 1 (IED1), IED
Team leader	H. Feig, Principal Evaluation Specialist, IED1, IED
	B. Finlayson, Senior Evaluation Specialist (Private Sector Operations), Independent Evaluation Division 2 (IED2), IED [until 13 January 2009]
Team members	M.J. Dimayuga, Evaluation Officer, Independent Evaluation Division 2, IED
	S. Labayen, Senior Operations Evaluation Assistant, IED1, IED

Independent Evaluation Department, SS-101

CONTENTS

The report was prepared by the team leader, with substantial inputs from former IED staff Bob Finlayson, Principal Infrastructure Specialist (Public-Private Partnership), Indonesia Resident Mission, Southeast Asia Department, who also undertook the evaluation of PSOD's PPP operations. Peter Darjes and Walter Stottmann were the consultants who prepared background papers on the performance of ADB assistance for PPP in the transport and water supply sectors. Rolf Westling provided inputs related to PSOD operations to the report on a consultancy basis. Noel Gamo provided background research. Ma. Juana Dimayuga provided research and contract administration support. Potential conflicts of interest were adequately managed. To the knowledge of the management of IED, there were no conflicts of interest of the persons preparing, reviewing, or approving this report.

EXECUTIVE SUMMARY

Background

Introduction. This first special evaluation study (SES) on Asian Development Bank (ADB) assistance for public-private partnerships (PPPs) in infrastructure development covers two decades (1988–2008) of related ADB operations. This SES is intended to provide inputs to formulating strategies and business plans for implementing further ADB support to PPP operations in developing member countries (DMCs).

PPP is defined in this SES as a subset of private sector participation (PSP) and includes all modalities that assume some form of partnership/contractual relationship between the public sector and private entities with the aim of delivering a public service, such as service and management contracts; leases; build-operate-transfer (BOT) projects and other forms of concessions; and joint ventures. The SES evaluates the performance of ADB's public and private sector operations in support of PPPs in the power, transport, and water sectors, and the development of related policy, legal, regulatory, and institutional frameworks. The performance evaluation methodology combines project assessments with assessments of ADB's strategic approach, development impact and value addition, and performance. The analysis is based on (i) findings of a review of all PPP-related public sector operations by the Independent Evaluation Department (IED), and (ii) evaluations by IED and the Private Sector Operations Department (PSOD) for completed PPP investments.

Context. Traditionally, national government budgets have been the predominant source of funding for infrastructure investments and services. However, over the past 20 years, more responsibility for infrastructure development and provision has been devolved to local governments or transferred to the private sector. Despite this, the amounts of finance actually mobilized for private infrastructure in Asia have fallen far short of levels required to help maintain levels of economic growth. After a surge in private foreign investment in the power and ports sectors under BOT type modalities before the Asian financial crisis, investment volumes fell substantially in the aftermath of the crisis, which highlighted deficiencies in utilized PPP approaches and reduced DMC demand. Also, interest declined on the part of foreign project developers and financiers, who saw many earlier contracts renegotiated or cancelled. With economic recovery after the Asian financial crisis, there has been renewed interest in PSP to meet increasing infrastructure investment needs. Furthermore, PPP modalities have evolved since the 1990s. There is an increased use of PPP schemes that involve fiscal support to facilitate PSP in water and road projects, which have had problems attracting private investment due to difficulties associated with predicting demand and charging cost-reflective tariffs. More attention is also being given to PPP modalities that encourage efficiency improvements, although the mobilization of private investment funds continues to be the prime objective for PPPs of many DMCs.

While some DMCs have encouraged PSP in infrastructure for some time, a number of others have only recently started to involve the private sector. Many DMCs have been seeking to improve conditions for PSP through the development of PPP policy, legal, and regulatory frameworks and PPP institutions, improvements in the overall investment climate, and the development of PPP pilot transactions, often with external financial and technical assistance. Progress has varied, with many countries struggling to attract private investment or expertise for the construction and management of new infrastructure.

ADB Strategy. While support for developing an enabling environment for and financing of PSP in infrastructure has featured in ADB's corporate strategies, sector strategies for power and water, as well as in a number of country partnership strategies (CPSs) over time, there have not been any more detailed strategies or business plans to translate these corporate objectives into actual support for PPPs. Under the new Long-Term Strategic Framework of ADB 2008–2020 (Strategy 2020)**,** ADB's infrastructure operations will emphasize public–private partnerships and private sector engagement. Support for private sector development and related operations are to account for 50% of ADB's operations by 2020.

ADB Assistance. Public sector (sovereign) assistance for PPPs has been a combination of program loans, investment loans, financial intermediation loans and technical assistance (TA) projects. Thirteen program loans in five DMCs had components involving policy dialogue on the development of legal, policy, or institutional frameworks for PPP. Eight investment loans promoted performance-based service or management contracts for operating and maintaining ADB-funded public infrastructure, three loans funded government equity stakes in PPP arrangements, and two loans financed complementary public sector infrastructure investments for PPP projects. Another five loans sought to finance the development PPP projects and seven financial intermediation loans provided mainly long-term financing in the amount of $543 million for 37 PPP projects. ADB also financed 73 TA projects in 12 DMCs—30 sought to assist in identifying and preparing pilot projects, 26 supported the preparation of PPP frameworks, 2 focused on building capacity, and 15 had mixed objectives. The level of PPP-related assistance generally decreased after the Asian financial crisis, but has increased substantially again since 2004 in line with renewed DMC interest in PPPs. Most of the earlier assistance was sector-based, with emphasis on the power sector, although recently, more cross-sector assistance was provided.

PSOD financed its first nonsovereign infrastructure project in 1988. Between 1988 and 31 December 2008, ADB approved funding amounting to $3.55 billion for 40 infrastructure transactions in the sectors covered by this SES. This included direct participation in the financing of debt or equity in the total amount of $3.05 billion for 33 PPP projects. Seven of these transactions in the amount of $676 million were subsequently cancelled, mostly prior to disbursement. PSOD also contributed to the financing of nine infrastructure funds, which invested more than $800 million in private infrastructure projects, most of which had PPP structures. In addition, PSOD supported the development of the Infrastructure Development Finance Company in India, which promoted the development of numerous PPP projects in the country.

The key evaluation findings are in the following paragraphs**.**

Performance of Public Sector Assistance for PPPs

Strategic Positioning. This is assessed to be "substantial," although a number of areas need strengthening to optimize strategic focus. For example, the absence of corporate strategies and business plans for PPP assistance affected related operations at the country level. Only in the power sector has ADB had a clear strategic framework guiding its support for private and public sector investments. Sector road maps lacked detail in regard to envisaged approaches and activities, and the role of PSP in sector development. In only a few DMCs, such as Bangladesh (power), India (power, roads), Pakistan (power), the Philippines (power, water), People's Republic of China (railways), Sri Lanka (ports), and Viet Nam (water), was assistance for PPP fully integrated with overall sector support. PPP-related assistance often accounted for only a small part of ADB's sector operations in a given country. This has been due, at least in

part, to a shift in road and water operations to rural areas and secondary towns, i.e., areas that have been less conducive to private infrastructure investment and operation. The sequencing of support for sector reforms and PPP-related assistance has generally been appropriate, although promoted policy measures did not always adequately consider PSP aspects. The strongest linkages between ADB support for overall sector reforms and PPP were evident in the power sector. Restructuring and unbundling has facilitated PSP in this sector. In other sectors, the extent and pace of reforms have been considerably more limited, which also restricted the scope for PPPs. ADB did not systematically address other areas that have had a bearing on private investment such as contract enforcement, procurement, public sector management and capital market development, which somewhat reduced the effectiveness of its PPP assistance. In selecting DMCs for assistance, ADB appropriately initially focused on countries with the best potential for PPP in terms of overall development level, reform effort and size. Lately, more efforts have been made to widen assistance to smaller and less developed DMCs. Coordination with other funding agencies has generally been satisfactory.

Relevance. ADB assistance has been "relevant." In most DMCs, infrastructure inefficiencies and/or capacity constraints have affected economic growth. Support for PSP in services provision and investment has been an appropriate response to development needs. ADB assistance for PPPs usually emulated emerging best practices. For example, in its assistance for PPP frameworks and transactions, ADB promoted the incorporation of private investments in least-cost sector expansion plans and the use of competitive bids in awarding concessions and contracts. ADB recognized early on the potential perils of private power generation projects with power purchase agreements that allocated too many risks to government, and therefore supported renegotiation efforts in the aftermath of the Asian financial crisis and the development of more equitable risk-sharing arrangements. ADB has also sought to promote PSP in power transmission and distribution in line with DMCs' overall progress in power sector reform. In the roads subsector, supported PPP modalities reflected Government priorities and objectives, as well as country conditions. For example, in India, where cost-recovery through tolling has been less feasible, ADB supported PPP schemes where the government assumes demand (i.e., traffic) risks through annuity payments or subsidizes part of the investment costs through viability gap funding (i.e., government financial support in the form of grants, one time or deferred, to infrastructure projects undertaken through PPPs with a view to make them commercially viable), whereas in the People's Republic of China, where it is more feasible to charge cost-reflective user charges in high traffic areas, it promoted BOT concessions. In the water sector, ADB initially supported bulk water BOT-type projects that did not address underlying sector problems related to water losses and service quality. However, its recent efforts have increasingly emphasized whole system approaches involving management contracts, leases, and affermages that seek to increase overall system efficiencies. In recent times, ADB also supported the development of cross-sector legal, regulatory, and institutional frameworks, which are crucial in building and sustaining the required political commitment and institutional capacity for larger scale PSP in infrastructure in DMCs.

Effectiveness. Public sector assistance to support PPPs has been "effective." The rating reflects that support for developing policy and regulatory frameworks for PPPs has largely met intended outcomes. However, assistance for preparing and implementing specific PPP transactions was only partly effective on the average. Less than half of completed TA for developing PPP transactions resulted in actual projects. This has been due to a number of factors including lack of commercial feasibility of selected project proposals, which had not been properly assessed, lack of full government and stakeholder commitment to private sector involvement, lack of institutional capacity in DMCs, insufficient levels of ADB support, or lack of investor interest. A number of financial intermediation loans that financed infrastructure PPP

subprojects and earlier project development facilities were less than effective, as there was little demand for these facilities in situations where underlying structural constraints to PSP remained unaddressed. Some of the ongoing support for PPP project development and financing looks more promising, not least because enabling conditions for private infrastructure have improved and workable PPP schemes have been devised.

Sustainability. Completed assistance is rated "less likely sustainable" on the average. The same factors that reduced the achievement of assistance outcomes also affected their sustainability. In addition, policy changes and capacity issues hindered the continuation of project attainments. For example, although ADB helped develop best practice contracts and processes for a number of successful PPPs, subsequent non-ADB assisted PPP transactions did not follow these standards. ADB extended comparatively little assistance for developing PPP capacity. Only in recent years, more systematic efforts were made to help relevant government entities in countries such as India and Indonesia establish functioning PPP units, which are likely to improve the sustainability of ongoing and future ADB assistance, as is ongoing support for cross-sector PPP regulatory and policy frameworks. Waning political commitment and lack of stakeholder support has been reducing the long-term prospects of ongoing PPP support in a number of DMCs.

Impact/Additionality. Impact/additionality has been "modest." While ADB contributed to a number of important PPP initiatives, its role in bringing about PPP transactions and additional private infrastructure investment in Asia has been limited so far. The economic impact of the few completed ADB-supported PPP transactions and the promoted PPP approaches has likely been positive. Value addition in conjunction with ADB's public sector operations was mainly achieved through TA and—to a lesser extent—through policy dialogue that helped prepare PPP policy frameworks. Several PPP transactions benefited from ADB’s involvement as honest broker and its due diligence on safeguards issues.

ADB Performance. ADB‘s performance is assessed as "partly satisfactory." The failure of a number of PPP assistance projects was also related to a lack of understanding of relevant concepts on part of processing staff, which affected project design. Levels of PPP-related staff expertise and resources outside the water sector in the regional departments (RDs) have been low. Going forward, more in-house expertise will be required on PPP issues to enable ADB to take a larger role in facilitating project development. Detailed policy analysis and dialogue, as well as transactions-related advice, have usually drawn heavily on consultant inputs. Also, until recently, there has been comparatively limited in-house research on sector-relevant regional PPP experiences and applications. Consultant performance and ADB responsiveness to client concerns have generally been satisfactory. Although internal coordination as regards power sector PPP assistance worked well, cooperation mechanisms could be improved for the other sectors as well, to maximize synergies between public and private sector operations. With an increasing number of cross-sector operations, there is also need to closely coordinate these with sector-based activities. In addition, incentives should be provided to RDs to pursue PPP options, e.g., performance-based management contracts for the operation and maintenance of ADB-financed infrastructure, whenever possible.

Performance of PSOD Support for PPP Transactions

Strategic Positioning. Strategic positioning has been "partly satisfactory." PSOD generally supported “pathfinder” projects that had the potential to help catalyze additional private sector financing and PPP transactions. However, its portfolio has been concentrated in comparatively few, larger DMCs and the power sector. This focus is rather narrow, compared

with the “universe” of actual PPP transactions implemented in Asian DMCs. PSOD's country and sector focus appears to have been not only a reflection of market demand, but PSOD's rather limited staff resources, which have reduced the scope for proactive project origination and project development support, particularly in frontier countries. Sector road maps lacked detail in regard to envisaged PSOD transactions, and linkages between public and private sector operations initiatives.

Development Impacts. Impacts of PSOD transactions have been "satisfactory." PSOD-financed PPP projects demonstrated the feasibility of the PPP concept, helped mobilize private sector capital, and showcased efficient management practices and productivity gains in providing infrastructure. Their contributions to private sector development are rated satisfactory. However, while PSOD’s PPP projects generally performed well, their impact on further PPP development was somewhat reduced due to continuing weaknesses in the regulatory environment, the Asian financial crisis, and lack of government capacity for PPP development and implementation. The business success of PPP projects was satisfactory, as project financial returns were in line with expectations. Satisfactory or excellent economic internal rates of return generated by projects indicate that economic impacts are satisfactory. Environmental, social, health, and safety performance requirements were rated satisfactory. Over the last two years, PSOD has increased the level of resources assigned to develop social and environmental compliance programs and monitor impacts, including on-site inspections in some cases. These arrangements have been effective in addressing social and environmental project risks.

ADB Investment Profitability. The profitability of ADB’s investments was rated "satisfactory." A review of PSOD’s PPP loan margins—the most important source of income for ADB from its PPP portfolio—confirmed they were in line with those of other commercial lenders, indicating that ADB is earning a competitive return on its investment. Relatively few problems have been experienced with nonperforming loans.

ADB Additionality. Additionality has been "satisfactory." The evidence gained from the historical review of PSOD’s PPP projects indicates ADB’s participation has helped mitigate financial risks by catalyzing private investment in PPPs and improving financial structures. However, ADB's potential contributions have been reduced by the timing of its participation in PPP transactions. In the majority of cases, the concession agreement had already been tendered by the time PSOD became a participant.

ADB Work Quality. The quality of PSOD work has been "satisfactory." However, improvements are needed to reduce the comparatively high level of project cancellations prior to operations, which suggests weaknesses in PSOD screening parameters for project readiness and internal pressures to maximize project approvals. Recently approved changes in credit processes for nonsovereign operations address identified shortcomings in general PSOD credit approval and management processes, in particular, weaknesses in the credit risk function, the separation of credit and pricing decisions, lack of separation between functional responsibilities for credit origination and for management, and the absence of an independent risk rating after credit approval. The use of standard project appraisal methodologies might have to be adjusted for PSOD infrastructure transactions. Value for money analysis should be encouraged, as appropriate, which will also facilitate the monitoring of development impact.

Overall Performance Ratings

ADB's support for PPPs in infrastructure development in general was rated "successful," but there are areas for improvements for both, public sector and PSOD operations, as implied by lower performance ratings in some specific areas and sectors.

Lessons and Recommendations

Key Lessons. PPPs are gaining international recognition as an important means of mobilizing private sector capital and expertise for infrastructure investments and service provision. However, PPPs are not a universal solution to underlying sector investment and performance problems. The respective costs and benefits associated with traditional public sector procurement and the use of PPP modalities have to be clearly established.

Support for PPP has not substantially increased actual PPP transactions in most DMCs for a number of reasons, e.g., unaddressed deficiencies in the country's overall investment environment, lack of DMC institutional capacity, and the long time frame required for implementing underlying infrastructure and public sector reforms. While PSOD projects have performed to a satisfactory level, their impact on the creation of further PPP projects has been limited in DMCs that did not institutionalize demonstrated best practices.

ADB assistance was most effective when it was focused, part of a long-term engagement, and integrated with sector reform initiatives that were supported by all relevant stakeholders. Sustained political will is the ultimate determinant of PPP success. Without the support of political and other stakeholders, PPP arrangements either did not materialize or were unlikely to last. ADB should consider initiating support for a program of advocacy and outreach to DMCs to clarify the role of PPPs and their potential benefits.

PPP development requires sustained policy dialogue and support for the development of suitable legal, regulatory, and institutional frameworks and assistance in the development of PPP pathfinder projects. PSP is not a substitute for reform or government effort. On the contrary, many PPP modalities require prior sector restructuring and tariff reforms to be effective. Also, the use of PPPs on a larger scale requires substantial government capacity for project identification and development, and the regulation and monitoring of PPP contracts. Support for policy reforms, capacity development, and pilot transactions can often proceed in parallel. Hands-on experience gained in developing and negotiating PPP pilot projects can serve as a valuable input for the development of PPP policy frameworks.

Support for PPP project development and related in-country capacity will be crucial for the success of future programs. Substantial assistance will have to be provided for (i) sector development planning that adequately considers the role of the private sector in infrastructure development; (ii) project preparation in terms of adequate (pre)feasibility studies, land acquisition, and social and environmental assessments; (iii) the delivery and management of government PPP support; and (iv) appropriate risk-sharing arrangements between public and private sector partners. Also, with regard to the feasibility of PPPs in countries where public services have been devolved to sub-national and local governments, the potential for PPPs at different government levels has to be carefully assessed considering country conditions, as past efforts in this regard have been less successful due to lack of institutional capacity, economies of scale, and government funds.

Some infrastructure sectors are more conducive to PSP and PPP than others. The power sector has received significantly more private investment than the transport or water sectors. This is due to a range of reasons including better potential for cost-recovery, higher political commitment due to the sector's importance for economic growth, lower levels of stakeholder resistance to PSP, greater institutional capacity, more progress with sector unbundling and utility restructuring, the centralized nature of decision-making and funding, and the availability of established PPP procurement modalities. Nevertheless, this does not mean that PPP in other sectors is without prospects. With appropriate modalities, support for capacity development, and political commitment to sector reforms, PPP is feasible in other sectors as well. PPP modalities have to be carefully chosen to address identified sector development needs. Initially promoted standard BOT-type modalities have proven useful in mobilizing additional investment funds for power generation and bulk water supply schemes, but did not help address underlying sector issues affecting demand for their output. Overall system efficiencies have to be considered in network-dependent infrastructure, particularly in the water sector. Development of road PPPs usually requires the government to assume demand risks and/or provide financial support, as it is usually difficult to charge tariffs that cover costs.

Recommendations. Going forward, to operationalize Strategy 2020, changes are required in ADB's support for PPP development, such as (i) stronger linkages between PPP support and other ADB sector operations; (ii) improved assistance for project development, new PPP modalities and related capacity development; and (iii) greater involvement in the transport and water sectors. This will in turn necessitate greater strategic focus, internal coordination, incentives for RDs to pursue PPPs, and changes in staff and consultant resources. A bankwide strategy for PPP development could help address these issues.

A detailed description of the issues and related recommendations are presented in the main text of this report. The following are key recommendations for consideration by ADB Management:

Key Recommendations	Responsibility	Time Frame
1. Improve ADB's strategic focus and performance. (i) Prepare a PPP corporate strategy that provides a consistent analytical and operational framework for PPP assistance in support of Strategy 2020. Among other things, preparing the strategy should – systematically assess PPP potential and assistance needs in DMCs and devise related ADB assistance strategies and approaches for the target sectors (para 111); – review mechanisms of ADB financial support for PPP projects (para 110); – increase the level of ADB staff resources with PPP expertise in line with strategic objectives (paras 98–99); – ensure the provision of high-quality advisory services by recognizing the specialized and high-cost nature of such expertise (para 87); – improve in-house PPP transactions advisory capacity (para 88/100); – identify any changes in ADB's organizational setup, allocation of responsibilities, internal cooperation mechanisms, and incentives that	ADB Management	Within 24 months

Key Recommendations	Responsibility	Time Frame
are required to ensure the effective identification, design, implementation and coordination of PPP-related activities (paras 104–107); and – include a results framework with monitorable indicators to facilitate monitoring and evaluation of the strategy implementation (para 112).		
(ii) Implement the corporate PPP strategy at country level through country partnership strategies, sector road maps, and assistance programs. Ensure that these – analyze and address binding constraints to PPPs in the enabling environment including through support for wider sector, governance, judicial, public sector management and procurement reforms (para 80); – systematically identify the potential for PPP and relevant public sector partners (paras 82–83); – include detailed strategies for PPP operations by RDs and PSOD (para 81); – determine the relative roles of public and private sector contributions to infrastructure development including through the use of public comparator/value for money analysis (paras 92-94); and – maximize synergy between PSOD and RDs PPP operations (para 81).	Regional Departments (RDs) and Private Sector Operations Department (PSOD)	As part of new country partnership strategies
2. Strengthen the effectiveness and impact of ADB support for PPPs.		
(i) Improve assistance for PPP project development. This should be facilitated through – increased support for PPP-related capacity development (para 89); – assistance for prefeasibility studies (para 85); – support for and use of value for money analysis (para 92); – assistance for assessing and monitoring fiscal implications of PPP schemes (para 90); – support for and use of PPP-relevant procurement modalities (para 91); – adequate budget allocations and terms of reference for transactions-related TA (para. 87); – adequate support for consultations with project stakeholders (paras 75 and 86); and – increased use of resident missions for project origination (para 89).	RDs and PSOD	Within 12 months

Key Recommendations	Responsibility	Time Frame
(ii) Promote wider range of PPP modalities (paras 114 and 116).	RDs and PSOD	Immediately
(iii) Expand sector coverage of PPP operations (paras 114 and 116).	RDs and PSOD	As part of new country partnership strategies

H. Satish Rao
Director General
Independent Evaluation Department

I. INTRODUCTION

A. Objective and Scope

1. This special evaluation study (SES) presents the first evaluation of Asian Development Bank (ADB) assistance for public-private partnership (PPP) through its public and private sector windows for infrastructure development over the period 1992–2008. ADB's new Long-Term Strategic Framework 2008–2020[1] (Strategy 2020) seeks to increase private sector-related operations to 50% of total ADB operations by 2020 and has designated infrastructure development as one of its core operational areas. PPPs are expected to play a key role in mobilizing more private sector funding for transport, power generation and transmission, and water supply investments. The objective of the SES is to derive lessons from past operations in those sectors that can guide ADB's PPP strategy and programs by identifying conditions for success, and promising areas and approaches for future assistance. The SES assesses ADB's operations related to the development of policy, legal, and regulatory frameworks for PPP, related institutions, and the development and financing of individual project transactions. For the purpose of this study, PPP is defined as a subset of private sector participation (PSP) and includes all modalities that assume some form of partnership/contractual relationship between the public sector and private entities with the aim of delivering a public service, such as service and management contracts; leases; build-operate-transfer (BOT) projects, and other forms of concessions; and joint ventures.[2]

B. Methodology

2. In assessing the development effectiveness of ADB's public sector assistance for PPPs, the SES combines sector-based assessments of the strategic positioning, the impact/additionality of ADB's assistance for PPP, and ADB's institutional performance, with assessments of the relevance, effectiveness, and sustainability of ADB's project assistance (Appendix 1 gives the details on the evaluation approach and methodology). Investment efficiency, another standard project evaluation criterion, has not been used for public sector evaluation as most assistance involved non-investment type lending and technical assistance (TA), and in many cases project components, rather than entire projects, were assessed. The SES focuses on three major sectors—power, transport and water—in which ADB has PPP-related operations.

3. PPP projects financed by the Private Sector Operations Department (PSOD) are evaluated using the Operations Evaluation Department's (OED)[3] *Guidelines for Preparing Performance Evaluation Reports on Nonsovereign Operations,* which combine assessments of development impacts and outcomes, ADB's investment profitability, ADB's work quality and operational effectiveness, and ADB's additionality.

4. Assessments are derived from desk reviews of ADB documents and working papers; literature review; supplementary information gained during visits to People's Republic of China

[1] ADB. 2008. Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank 2008-2020. Manila

[2] The Study adopted a broad definition of PPP in line with ADB's Handbook on PPPs and language used in most project documents. In a number of countries, PPP is more narrowly defined and refers only to concession-type structures or to structures with substantial sharing of risks and rewards between public and private sector contract parties. PPP is a subcategory of PSP in infrastructure. Apart from PPPs, PSP also comprises privately owned infrastructure that does not involve any contractual arrangements with the public sector such as full divestments.

[3] The Operations Evaluation Department was renamed the Independent Evaluation Department effective 1 January 2009.

(PRC), India, Indonesia, Philippines, Sri Lanka, and Viet Nam; in-country consultations with government representatives; interviews with a number of selected ADB staff involved in PPP activities; and available project and TA completion and performance evaluation reports. Three project performance evaluation reports (PPERs) were prepared in 2008 as inputs for the SES on the following PPP projects: (i) a water project in the PRC (ii) a power transmission project in India, and (iii) a transport project in Sri Lanka (Appendix 2). In addition, the Independent Evaluation Department (IED) reviewed PSOD's quarterly reports on private sector operations and annual reports on active individual projects.

C. Organization of the Report

5. Chapter II is a brief overview of ADB's strategies and assistance programs for PPP in infrastructure. Chapter III presents assessments of ADB's assistance for PPP in its public and private sector operations, as well as an overall rating of ADB's assistance in this area. Chapter IV summarizes key findings and lessons, identifies issues, and has recommendations for ADB management with regard to future assistance.

II. ADB STRATEGIES AND ASSISTANCE PROGRAMS FOR PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE DEVELOPMENT

A. Context, Government Strategies, and Assistance Needs

6. Low levels of public sector revenue mobilization, underdeveloped financial systems that do not encourage the flow of long-term private capital into infrastructure projects, weak sector institutions, and policy constraints have affected the provision of infrastructure services in many developing member countries (DMCs). Globally, 1.1 billion people lack adequate access to clean water, 2.4 billion lack adequate sanitation, 4.0 billion lack sound wastewater disposal systems, and 2.0 billion lack electric power.[4] The majority of these live in Asia. Surveys such as the World Economic Forum's Global Competitiveness Report (2007) confirm that weaknesses in infrastructure are a serious impediment to competitiveness and economic development in many DMCs. Businesses in India, Indonesia, Pakistan, Philippines, and Viet Nam have all reported infrastructure as the most important, or second most important, constraint on their operations.[5]

7. Actual rates of infrastructure investment have ranged from less than 4% of GDP in some DMCs to more than 10% in countries such as PRC and Viet Nam (Table 1). The funding gap between available fiscal resources and investments required to maintain economic growth at high levels for Asia is likely to exceed $200 billion per year during the next years, and many DMC governments have stated their intention to tap private sector resources to help fill this gap.

8. PPPs are also increasingly expected to improve the efficiency and quality of service delivery, although these have tended to be secondary objectives for most countries in the Region.[6] Global experience indicates the potential for private infrastructure (built, owned or operated by private sector for public use) to reduce project costs, improve quality and access to services, and improve efficiency. Well-designed electricity and water concessions have yielded positive results in countries such as Bolivia, Chile, and Peru.[7] Studies of price reductions for

[4] Public-Private Infrastructure Advisory Facility. 2007. *Infrastructure Finance, Sources and Trends*. Tokyo.
[5] World Economic Forum. 2007. *World Competitiveness Report*. Geneva
[6] In contrast to the Latin American experience, East Asian private participation in infrastructure tended to be confined to individual greenfield projects with little sector restructuring, rather than privatization of existing assets in the context of sector-wide reforms designed to enhance overall sector efficiency.
[7] Harris, C. 2003. *Private Participation in Infrastructure in Developing Countries*. Washington, DC: World Bank.

PPP outputs as a consequence of improvements in efficiency have been in the range of 10%–30%.[8] There is evidence that private sector provision has led to better service provision to the poor[9] and, in many cases, to better compliance with environmental regulations. There is also evidence that PSP can reduce corruption. When contracts are transparently and competitively bid, concessionaires have strong incentives to minimize unnecessary costs in areas such as extracting payments from consumers in exchange for reduced utility bills, or shorter waiting times for connections.[10] The United Kingdom (UK) Treasury reported that 70% of non-PPP projects were delivered late, compared with 20% of PPP projects, and 73% of non-PPP projects went over the budget compared with 20% of PPP projects.[11] In Australia, PPP projects generated project cost savings of 30.8% and were completed on average 3.4% ahead of time, whereas traditional public sector projects were completed 23.5% behind time.[12]

Table 1: Actual Infrastructure Investment in Selected DMCs (% GDP)

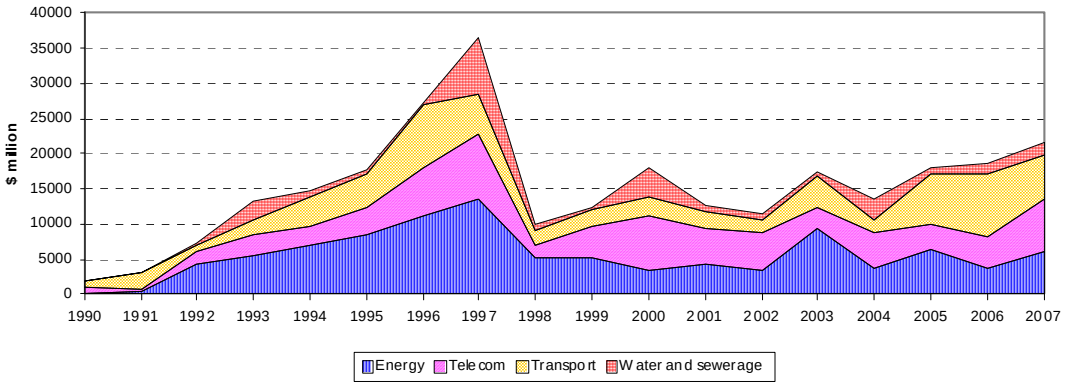
0%–4%	**4%–7%**	**Above 7%**
Cambodia	India	PRC
Indonesia	Lao PDR	Thailand
Philippines	Mongolia	Viet Nam

GDP = gross domestic product, Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.
Source: ADB, World Bank, Japan Bank for International Cooperation (JBIC). *2005. Connecting East Asia*; *India Infrastructure Report*, 2006.

9. Actual levels of private sector financing for infrastructure have stayed below funding needs (Figures 1 and 2). During 1997, the year with the highest investment volumes, total investments in private financed infrastructure projects in East Asia crossed $35 billion, including $25 billion in the energy, transport and water sectors. Investment sharply fell in the aftermath of the Asian financial crisis, and has yet to fully recover. Among these DMCs, only Cambodia, the PRC, and Viet Nam have had higher levels of PPP financial closures during the last 10 years than during the period leading up to the crisis. The trends in South Asia are slightly different, with private investment in infrastructure starting from a low base, but growing rapidly in recent years in the energy and transport sectors following the development of a comprehensive PPP program in India. Despite this rapid growth, levels of private investment in infrastructure have fallen short by a wide margin of the target levels presented in India's 5-year plans. In general, private investment is estimated to finance only about 5% of the region's total investment needs today, compared with perhaps 20% at its peak.

[8] Hodge, Graeme. 2000. *Privatization: An International Review of Performance*. Boulder, CO: Theoretical Lenses on Public Policy, Westview Press.
[9] Clarke, George and Scott Wallsten. 2002. *Universal(ly Bad) Service: Providing Infrastructure Services to Rural and Poor Urban Consumers.* Washington, DC: World Bank.
[10] Lovei, Laszlo and Alastair McKechnie. 2000. The Costs of Corruption for the Poor – the Energy Sector. *World Bank Viewpoint Note No 207*. Washington, DC: World Bank.
[11] H.M. Treasury. 2006. *PFI Strengthening Long Term Partnerships*. London.
[12] Allen Consulting Group and University of Melbourne. 2007. *Performance of PPPs and Traditional Procurement in Australia*. Melbourne.

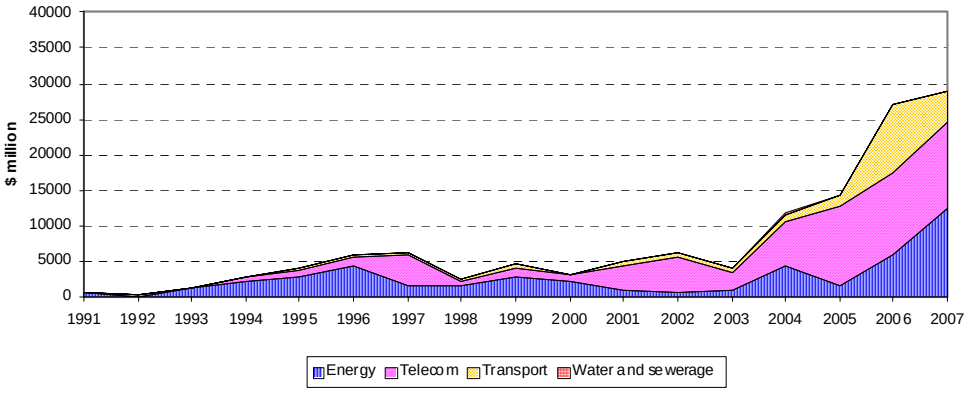
Figure 1: Private Financed Infrastructure in East Asia, by Sector, 1990−2007



Source: World Bank, PPI Database.

10. To be successful, private sector participation (PSP) in infrastructure investments and services requires enabling economic, policy, legal, regulatory, and institutional conditions. The effective contribution of the private sector to infrastructure has been hampered by a lack of institutional capacity, weak governance systems, and unclear or unsuitable rules and regulations, all of which increase transaction costs and risks. A number of first-generation private sector infrastructure projects implemented during the 1990s had issues related to the allocation of risks between public and private partners, particularly foreign exchange risks. Those risks were exacerbated by the Asian financial crisis and led to the renegotiation of many contracts, and a number of cancellations.[13] Also, those projects had often been originated through unsolicited bids and were neither properly integrated with overall least-cost sector investment plans, nor procured in a transparent, competitive manner exposing them to political pressures later on. As a result, private investor interest declined sharply, governments became much more cautious about the fiscal impact of PPP-related commitments, and civil society more skeptical because pass-through provisions resulted in substantial tariff increases in some cases.

Figure 2: Private Financed Infrastructure in South Asia, by Sector, 1990−2007



Source: World Bank, PPI Database.

[13] The Asian Development Bank Institute (ADBI) recently completed a global study of the causes of stresses in PPP contracts and found that 71% of contracts had been renegotiated in East Asia, compared with only 21% on a global basis. Source: Reside Jr., R. 2008. *Global Determinants of Stress and Risks in Public-Private Partnerships (PPP) in Infrastructure*. Asian Development Bank Institute, Tokyo.

11. With economic recovery after the Asian financial crisis, there has been renewed interest in PPPs on the part of governments, investors, and developers, particularly from an increasing number of local companies. Some DMCs have sought to improve conditions for private infrastructure through more strategic approaches, such as developing PPP frameworks and PPP institutions, improving the overall investment climate, and developing and financing PPP pilot transactions in line with emerging best practices. Globally the use of PPP schemes that involve direct government financial support has increased, particularly in the roads and water sectors, which have had problems attracting private sector investment without fiscal support due to demand risks or difficulties in charging cost-reflective tariffs. The United Kingdom sought to address this issue through its Private Finance Initiative (PFI) program. PFI concessions receive most of their revenue from the public sector and they have been successful in both attracting private capital and reducing project costs by about 15%−20%.[14] On a global basis, there is strong growth in the use of PFI concessions in countries as diverse as Australia, Brazil, Canada, Chile, Russia, South Africa, and United States. The PPP program of the Republic of Korea has made extensive use of government support such as minimum revenue guarantees to help attract private investment. In India, due to problems experienced in mobilizing private finance to develop infrastructure projects in the past, the Government established a PPP program comprising a mix of traditional BOT projects, annuity concessions based on the PFI model, and introduced viability gap funding to help attract private developers to projects with high economic, but low financial returns. Supplementary Appendixes F–I give an overview of general and sector-specific measures that can enable PSP and the various PPP modalities in line with their respective objectives.

12. At the same time, DMCs have made efforts to strengthen infrastructure sector planning and implement overall sector reforms. To facilitate and derive most benefits from PSP, ideally, sectors should be unbundled to the extent feasible and opened up to competition; independent regulators need to be established to set tariffs and ensure that public and private operators are complying with established standards; the financial viability of Government-owned off-takers should be strengthened to reduce the demand for government guarantees; and tariffs increased to more cost-reflective levels. In addition, decentralization in a number of DMCs has resulted in a greater devolution of public services to local governments, which are also seeking to promote PPPs to overcome fiscal and capacity constraints.

13. Many DMCs have sought external assistance for developing PPP frameworks and model projects, as well as related financial support. Private project sponsors have likewise been approaching international financial institutions for financing and credit enhancements.

B. ADB Strategies

14. **General Corporate Strategies.** ADB's 1999 Poverty Reduction Strategy, 2000 Private Sector Development Strategy (PSDS), and the Long-Term Strategic Framework for 2001–2015, acknowledged the role of public sector support and related ADB assistance for the development of PSP in infrastructure. The Enhanced Poverty Reduction Strategy emphasized the need for ADB to help enable private operators to provide public infrastructure services and projects targeting the poor and saw support for regulatory reforms preceding PPPs, while the PSDS called for ADB's public sector operations to increase their orientation toward private sector development and help improve the investment climate. The Long-Term Strategic Framework 2001–2015 highlighted ADB's catalytic role in mobilizing private sector resources and in

[14] Grimsey, D., and M. Lewis. 2005. Are Public Private Partnerships Value for Money? Evaluating Alternative Approaches and Comparing Academic and Practitioner Views. *Accounting Forum* 29(4). Amsterdam.

facilitating infrastructure PPPs, not only through financial participation in private sector transactions, but also through support for creating an effective enabling environment for private infrastructure; developing innovative PPPs; brokering effective partnerships between public and private investors in countries and sectors where there is a basis for commercial participation, but where the private sector may be reluctant to invest on its own; financing the public investment portion of such initiatives; and assisting in building the long-term capacity of governments for PPP.

15. Strategy 2020 states that ADB will invest in infrastructure; advise governments on the basics of a business-friendly environment, including reliable rules, regulations, and policies that do not disadvantage private sector enterprise; and distribute related knowledge. But, more significantly, Strategy 2020 also calls for ADB's infrastructure operations to emphasize PPPs and private sector engagement. The strategy explicitly considers public sector operations as means to further private sector involvement. ADB support for developing the region's private sector is to increase significantly, in terms of the number of ADB-financed projects and in its share of ADB's annual operations with a target of 50% by 2020. Compared with the earlier strategies, Strategy 2020 recognizes that ADB will need to align its technical, financial, and economic expertise to standards that maintain the respect and confidence of clients and business executives interested in PPPs.

16. **The Power Sector.** ADB's 1995 energy policy and its review in 2000 have provided a strategic framework for ADB PPP assistance in the sector. ADB's envisaged role in this regard is to help DMC governments create enabling legal and regulatory frameworks for PSP and assist in identifying, preparing, bidding out, and negotiating independent BOT/build-own-operate (BOO) generation projects. The 1995 policy recognized potential problems with independent power producers (IPPs) and recommended that (i) BOT/BOO projects be part of least-cost power development plans; and (ii) the sustainability of PSP options be clearly demonstrated. In addition, the 2000 review emphasized that competition is important for enhancing sector efficiency by introducing electricity markets and international competitive bidding (ICB) for PSP modalities. While many country partnership strategies (CPSs) reflected facilitation of PSP in the power sector as one of their objectives, in most cases no detailed operational strategies were developed to achieve that. In general, sector road maps assumed that ADB's public sector operations would concentrate on sector reforms and financial support for power transmission, rural electrification, and renewables, while support for generation activities was to be financed through ADB's private sector window.

17. **The Transport Sector.** ADB has not yet adopted any transport sector strategy. The focus of ADB sector assistance has evolved and broadened over time. Initial support narrowly focused on completing network gaps, and rehabilitating and preserving assets. Subsequently, increasing attention has been given to improving the policy and institutional environment so as to increase efficiency and service quality, and enhance the poverty reduction impact of transport projects. In the roads subsector, the strategic and operational emphasis shifted from highway/expressway systems to secondary and rural roads. ADB's TA operations began to also concern themselves with strengthening institutional capacity and sector policies and regulations in an effort to improve sector performance. ADB has also sought to assist in improving the conditions for mobilizing private resources needed for investments and facilitate the use of PPP arrangements. However, there have not been any explicit strategies at the corporate or country levels to support ADB's PPP activities in the transport sector, other than general statements of intent to help include PSP in sector planning; create an enabling legal and regulatory environment for PPP in transport; develop model concession agreements; and identify and

prepare pilot projects. There has been comparatively little focus on railways and port-related assistance.

18. **The Water Supply and Wastewater Services Sector.** ADB's 2001 "Water for All" policy[15] endorsed PPPs as a means to improve sector performance and efficiency, particularly with regard to service delivery. ADB was to support BOT/BOO projects through its private sector window, with the aim of securing additional resources, superior management structures, advanced project implementation capabilities, construction technology, and improved operation and maintenance (O&M) services. ADB was to also assist DMCs in identifying suitable projects for such financing and engaging concessionaires. There have not been any more detailed strategies or guidelines to support ADB's PPP activities in the water sector at the institutional level. While some country strategies have included the development of PPP opportunities among the operational objectives for ADB sector assistance, there are no specific action plans on how to achieve that. ADB's overall operational focus in this sector has also changed to support for new investments in secondary towns and rural areas, while continued attempts are made to address sector inefficiencies through policy dialogue.

19. **Country-Level Strategies.** The review of the CPSs indicates that only a small number of countries have actively considered support for PPPs. The most important countries were Bangladesh, PRC, India, Indonesia, Lao People's Democratic Republic (Lao PDR), Philippines, Sri Lanka, and Viet Nam. Sector priorities for PPPs were not clear across countries, and where mentioned, PPPs typically encompassed power and transport, and occasionally water (Table 2).

Table 2: PPP Initiatives Identified in CPSs

Country	Year	PPP Initiatives
Afghanistan	2002	PPPs not a feature.
Armenia	2007	PPPs not a feature.
Azerbaijan	2003	PPPs not a feature.
Bangladesh	2005	PPPs identified as a priority – reform in power sector based on corporatization and unbundling; introduction of landlord port at Chittagong.
Bhutan	2005	PPPs identified as a priority in the energy sector, with potential for generating power for export to India.
Cambodia	2000/2005	Promotion of PPP in roads and railways and related capacity development.
People's Republic of China	1997/1999/ 2003/2008	Promotion of BOT/PPP modalities in power, roads, water, and development of related legal and regulatory environment. 2008 CPS prioritizes PPP transactions in the less developed interior provinces and for clean energy development.
India	1996/2003	Promotion of PSP in infrastructure through assistance for establishing an enabling policy, regulatory, and institutional framework; related financial support and development of viable PPP mechanisms. PSOD to consider investments in power, hydrocarbon, transport and telecommunications sectors.
Indonesia	1994/2001/ 2003/2006	Catalyzation of PSP in power, gas, ports and water with PSOD pursuing privately financed projects in these sectors. Support for infrastructure reform program to improve the investment climate and facilitate private investment in infrastructure.
Kazakhstan	2003	PPPs not a feature.
Kyrgyz Republic	2003/2007	PPPs not a feature.
Lao PDR	2001/2002/ 2006	Support for private sector investment in hydropower.
Mongolia	2005	Recognition of PPP potential, but no project priorities identified.
Nepal	2004	PPPs not a feature.
Pakistan	1995/2002	Investment and policy components of infrastructure sector development projects to address PPP. Support for privatization including in power generation

[15] ADB. 2001. *Water for All: The Water Policy of the Asian Development Bank.* Manila.

Country	Year	PPP Initiatives
		and part of transmission system, foreign investment, and independent regulation in the energy sector.
Papua New Guinea	2006	Exploration of opportunities for PSOD in the energy and transport sectors.
Philippines	1998/2001/ 2005	Support for bidding out of transport PPPs; improving enabling environment for PSP in power, water, and roads; developing cxpacity for PPP; privatizing the National Power Corporation; and restructuring railways. PSOD investments in power generation and transmission.
Sri Lanka	1993/2003	Support for establishing an enabling environment for private investment in infrastructure. Promotion of greater private participation in financing, building, operating, and maintaining the road network and developing the Colombo port. ADB assistance to focus on sector unbundling to improve opportunities for private sector participation in the power sector over time.
Tajikistan	2003	PPPs not a feature.
Thailand	2007	Exploration of opportunities for PPPs.
Uzbekistan	2006	PPPs not a feature.
Viet Nam	1995/2001/ 2006	Support for enhanced PSP in infrastructure through related policy support addressing investment constraints and PSOD financing of pilot transactions in line with best practices. Support for private sector operations in areas such as clean and efficient energy, power generation and transmission, transport including urban mass transit systems, and ports. PPPs could combine synergies from ADB's public and private sector operations.

ADB = Asian Development Bank, BOT = build-operate-transfer, CPS = country partnership strategy, PPP = public-private partnership, PSOD = Private Sector Operations Department, PSP = private sector participation.
Source: Independent Evaluation Department.

20. While support for developing an enabling environment and financing PSP in infrastructure development has featured in a number of CPSs over time, the information provided has usually been fragmented and tentative. There are no details on sector road maps regarding envisaged approaches, sequencing with overall sector reforms, and linkages between public and private sector operations initiatives. CPSs give few details on individual PSOD projects, and when there is a reference to PPP, it is only in general terms. Sector road maps continue to be highly generic with little information in the form of a sector diagnostic, and rationale from an economic perspective on why projects have been selected. The CPSs do not discuss why projects are to be financed through the public sector rather than the private sector window, or the rationale or additionality of ADB's private sector operations.

21. No single document defines how PSOD pursues PPP transactions using type of recipient, country, sector, or funding instrument. During 2001–2008, PSOD's Director General prepared various memoranda and presentations that were used to help define PSOD's role in catalyzing private investment in infrastructure.[16] The presentations reinforced the concepts in the PSDS that the regional departments (RDs) would strengthen the enabling environment and generate business opportunities and PSOD would catalyze private investment through the use of (i) equity, (ii) mezzanine finance, (iii) direct fixed and variable rate long-term debt denominated in foreign and local currencies, (iv) foreign long-term debt provided under the complementary financing scheme (CFS) sourced from other commercial banks, (v) partial credit guarantees (PCGs), and (vi) political risk insurance. PSOD's objectives were to support private sector development, knowledge transfer, and risk mitigation. ADB's assistance was seen to provide a measure of support against government interference and comfort on issues such as environmental protection and good governance. PSOD projects were designed to leverage the impacts of the RD programs of regulatory reforms in infrastructure. Specific target sectors included power, water, roads, and municipal infrastructure.

[16] ADB. 2006. *Asian Development Bank, Private Sector Operations, Role and Development Responsibilities.* Manila.

C. ADB Assistance Programs for PPPs

1. Assistance through the Public Sector Window

22. Public sector (sovereign) assistance for PPPs has been a combination of program loans, investment loans, financial intermediation loans and technical assistance (TA) projects. Thirteen program loans in 5 DMCs had components involving policy dialogue on the development of legal, policy, and institutional frameworks for PPP. Eight investment loans included provisions for performance-based service or management contracts to operate and maintain ADB-funded public infrastructure, 2 loans financed complementary public sector infrastructure investments for PPP projects, and 3 loans funded government equity stakes in PPP arrangements. Five loans financed the development PPP projects and 5 financial intermediation projects provided mainly long-term financing in the amount of $543 million for 37 PPP projects (see Appendix 2, Table A2.1). ADB also financed 73 TA projects in 12 DMCs (Appendix 2, Table A2.2): 30 sought to assist in identifying and preparing pilot projects, 26 supported the preparation of PPP frameworks, 2 focused on building capacity, and 15 had mixed objectives (Appendix 2, Table A2.5).

23. Most PPP-related assistance has been in the power and roads sectors, which is not surprising, given their share in ADB's lending portfolio. The level of PPP-related assistance generally decreased after the Asian financial crisis, but has increased substantially again since 2004 in line with renewed DMC interest in PPPs. More assistance is now also addressing general, as opposed to only sector-specific, PPP frameworks. The number of related lending operations, mainly program loans, has also increased (Appendix 2, Table A2.6).

24. Linkages between ADB's overall public sector operations and PPP support, and between PPP support and PSOD operations have varied from sector to sector (Table 3), with potential for synergies being highest in the power sector. ADB has provided comparatively little support for PPP in the ports sector, but in the railways sector, it had a number of PPP-related initiatives despite its generally limited engagement in the sector. Despite involvement of the RDs in PPP-related operations in the transport and water sectors in a number of DMCs, there has been little PSOD engagement. Particularly in the power, port, and water sectors, the number of DMCs with PPP transactions has substantially exceeded the number of DMCs where ADB has had PPP support.

Table 3: DMCs with ADB Sector Operations and Support for PPP through the Public Sector Window, PSOD Financing, and Actual PPP Transactions

Item	Power (generation, transmission/ distribution, renewables, hydropower)	Road	Ports	Rails	Water Supply and Sanitation (Urban)
A. No. of DMCs with ADB public sector investments	18	20	10	7	19
B. No. of DMCs with ADB support for PSP from public sector window	10	7	3	6	9
C. No. of DMCs with ADB financing from private sector window	12	3	2	–	2 (plus cancelled transactions in 2 additional DMCs)

Item	Power (generation, transmission/ distribution, renewables, hydropower)	Road	Ports	Rails	Water Supply and Sanitation (Urban)
D. No. of DMCs with PSP	22	9	12	6	13
DMCs with B and D	BAN, IND, INO, LAO PDR, NEP, PAK, PHI, PRC, VIE	IND, INO, PHI, PRC	INO, PAK, SRI	PRC, THA	IND, INO, PHI, PRC, THA
DMCs with B and C	BAN, IND, INO, LAO, NEP, PAK, PHI, PRC, VIE	IND, PHI	PAK, SRI	–	INO, PHI, PRC, VIE
DMCs with B and no D	BHU	PAK, SRI	–	CAM, PAK, PHI (Railways), SRI	NEP, PAK, SRI, VIE

ADB = Asian Development Bank, BAN = Bangladesh, CAM = Cambodia, DMC = developing member country, IND = India, INO = Indonesia, Lao PDR = Lao People's Democratic Republic, NEP = Nepal, PAK = Pakistan, PHI = Philippines, PPP = public-private partnership, PRC = People's Republic of China, PSP = private sector participation, SRI = Sri Lanka, TA = technical assistance, THA = Thailand, VIE = Viet Nam.
Source: Independent Evaluation Mission.

25. **Cross-Sector Assistance.** ADB has increasingly emphasized the development of cross-sector PPP policy, legal, and institutional frameworks. Related policy dialogue was held in conjunction with program loans in Indonesia and Pakistan, and to a limited extent in the Philippines and Sri Lanka. Substantial TA was provided in India, Indonesia, and Pakistan to help establish central PPP units and to support their operations through the funding of project development facilities. In India this support was rolled out to line ministries and state governments as well. ADB also supported the establishment of a project development facility for local governments in the Philippines. In Bangladesh and India, ADB has supported infrastructure financing through financial intermediation loans for commercial banks and newly created infrastructure finance institutions. Supplementary Appendix F contains more detailed information on ADB assistance for cross-sector PPP support.

26. **The Power Sector.** Through its public sector window, ADB has promoted PPP in the power sector through support for (i) sector restructuring, which typically involved separating the generation, transmission, and distribution functions; establishing an independent regulator; and introducing markets for power; (ii) creating an enabling legal and regulatory environment for PSP; (iii) privatizing power generation and transmission companies, and improving their standards of governance and management; and (iv) developing pilot PPPs.

27. ADB provided 11 policy-based loans and 21 TA projects in eight DMCs to support power sector restructuring including unbundling, tariff reform, and the establishment of independent regulators, all of which facilitate private sector investment. ADB's direct contributions to the development of PSP-specific legal and regulatory frameworks were limited to five technical assistance (TA) projects and covered laws or regulations for foreign direct investment in the PRC power sector, PSP in hydropower and other renewable sources of energy (in Bhutan, Nepal, Pakistan), and the development of comprehensive policy frameworks for promoting PSP in all power subsectors in Bangladesh and in power generation projects outside Java and Bali in Indonesia.

28. The majority of ADB's public sector assistance for power sector investments since the 1990s did not incorporate PSP concerns. There have been exceptions though. In the Lao PDR,

ADB supported the first Nam Theun hydropower project, a joint venture by the state-owned power utility Electricité du Laos (EdL) and two foreign investors. ADB provided funding to EdL through the public sector window, acted as the lead coordination agency for the Government's negotiations with foreign investors, and provided legal and financial advice under TA 2054. The Nam Theun 2 hydropower plant will operate on a BOT basis. ADB support comprises a public sector loan to the Government to finance the Government's equity stake in the project, a direct loan to the project company without Government guarantee, and a political risk guarantee. In the public sector Mong Duong I Project, ADB funding of the construction of the associated common facilities for the private coal-fired $1.4 billion Mong Duong II power plant will reduce the risk and costs of the private sector investors and result in lower energy prices. In Bhutan, ADB is providing ordinary capital resources funding for some of the debt portion of the Dagachhu hydropower project, a joint venture between a public sector power corporation and a private Indian power company, as well as financing from the Asian Development Fund for a portion of the Government's equity contribution to the project. ADB also sought to assist in developing private power generation projects through TA in six DMCs (Bangladesh, Bhutan, India, Lao PDR, PRC, and Viet Nam). In addition, ADB TA helped prepare the privatization of the Karachi Electric Supply Company and the preparation of PSP in a transmission project in India. Supplementary Appendix G contains more detailed information on ADB assistance for PPP in the power sector.

29. **The Transport Sector.** ADB has promoted the creation of enabling conditions for PSP in the roads, port, and railways sectors through its public sector window by supporting general sector reforms: (i) outsourcing O&M for highways in India (Madhya Pradesh), Kyrgyz Republic, Philippines, and Viet Nam; (ii) sector unbundling for ports in Indonesia and Indian Railways; (iii) establishing independent regulators for toll roads in Indonesia, ports in Pakistan and Sri Lanka; (iv) increasing competition in Sri Lankan ports; (v) introducing user fees and commercial pricing for expressways in the PRC, and toll roads in Indonesia; (vi) acquiring land/right-of-way for toll roads in Indonesia; and (vii) strengthening integrated sector planning in the Philippines and Viet Nam.

30. More directly related to PPPs was assistance for and/or policy dialogue on the (i) creation of an enabling legal and regulatory environment for PSP for highways in India, Indonesia, Pakistan, PRC, and Viet Nam, and for local ports in Indonesia; (ii) identification of PPP opportunities in PRC and Viet Nam railways and rapid transit systems; (iii) commercialization, corporatization, (partial) privatization of expressway companies (PRC), ports (Pakistan, Sri Lanka), and railways (Cambodia, Philippines); (iv) development of PPP modalities for highways in India and PRC, and for ports in Indonesia; and (v) development of pilot PPPs and related capacity development for highways in India, PRC, Sri Lanka, and Viet Nam, for ports in Indonesia and Sri Lanka, for railways in Cambodia, and for rapid transit systems in the PRC and Thailand.

31. ADB also incorporated PPP components in public sector investment projects. In India, a portion of the ADB-financed East-West Corridor of the National Highways Development Program was developed under BOT and the ADB-financed Surat-Manor tollway is being operated and maintained by a private concessionaire. Supplementary Appendix H contains more detailed information on ADB assistance for PPP in the transport sector.

32. **The Water Supply and Wastewater Services Sector.** ADB has supported PPP in water supply and sanitation services through TA and policy dialogue for related sector reforms, measures to build capacity, preparation of PPP projects, and inclusion of a PPP component in public sector investment projects. Policy dialogue in Nepal and Pakistan promoted management

of the Kathmandu water utility by a private operator, and adoption of new sector legislation clarifying the use of PSP, respectively. TA projects covered the establishment of a legal basis for private water operations in Indonesia, PRC, and Sri Lanka, as well as the establishment of a regulator for the Manila water concessions. ADB has also sought to create enabling conditions for PSP in the sector through assistance for (i) tariff reforms in Indonesia, PRC, and Viet Nam; (ii) the corporatization and commercialization of water utilities in Bangladesh, Cambodia, Indonesia, Pakistan, and Philippines; and (iii) for regulatory reforms in Indonesia, Philippines, and Sri Lanka.

33. In addition, ADB has been providing assistance in preparing PPP transactions in India (pilot projects by local governments and the PPP cell in the Ministry of Urban Development), Indonesia (bulk water BOT project in Bandung and pilot projects by local governments), Philippines (developing new water sources in Manila and identifying small water supply BOT projects or concessions in five local government units), PRC (Chengdu bulk water treatment BOT project), Thailand (Pathum Thani BOT concession), and Viet Nam (performance-based management contracts or leases in several large cities).

34. Several ADB-financed public sector investments in India include PPP components (service contracts for metering in Kolkota, and PPP components for small water/sewerage projects in North Karnataka). Supplementary Appendix I contains more detailed information on ADB assistance for PPP in the water sector.

2. PSOD Operations

35. As of 31 December 2008, ADB had approved 60 infrastructure transactions that were not sovereign guaranteed.[17] Total ADB financial contribution was $5.85 billion, comprising $4.1 billion in PPP structures and $1.75 billion in corporate finance structures, which became increasingly common during 2005–2008. 40 of those 60 transactions with a total value of $3.6 billion were in the infrastructure sectors covered by this SES, i.e., power, ports, roads, railways, and water, with the balance comprising telecommunications, gas, airport, and energy efficiency projects. ADB approved financing for 33 PPP projects in the reviewed sectors and another 7 transactions involved financing to merchant power plants and private infrastructure companies. Seven of the PPP projects were cancelled, mostly prior to disbursement.[18] This rate of cancellation of PPP approvals (21% by number and 19% by value) is high. Most cancellations occurred in the water sector (4 projects representing 67% of all sector PPP approvals by number and 72% by value), whereas only 3 power projects were cancelled, representing 11% of sector PPP approvals by number and 12% by value. Cancellations were mainly due to disagreements between project sponsors and governments, events affecting the commercial viability of transactions, and ADB pricing. An innovative feature of the infrastructure portfolio was a PSOD investment in 2007 in a water infrastructure company based in Singapore that advises PRC municipalities on PPP project designs.

36. Figure A2.2 in Appendix 2 illustrates the country distribution of approved projects in the reviewed sectors, totaling 12 countries. PRC, India, Indonesia, and Philippines have been the primary locations for infrastructure projects. A review of the evolution of approved infrastructure transactions over time from a sector perspective (Figure A2.3) indicates energy, particularly power generation, has consistently dominated PSOD's infrastructure portfolio. However, it is

[17] As shown in Appendix 2, Figure A2.1, progress in PPP approvals over time has been uneven and erratic. There were no approvals in 1995, 1997, and 2001, whereas growth was strong in 2005–2008.

[18] IND: Balagarh Power, PRC: China Water Utility, VIE: Lyonnais Viet Nam Water Company, PHI: Maynilad Water Services, IND: Torrent Power Generation, PRC: Thunip Water Investment.

noteworthy that 48% of the private infrastructure transactions approved from 2004 to 2008 were for telecommunications, gas, energy efficiency, and airport project, compared with 8% from 1988 to 1993. Also, the power sector transactions approved during that period, included 3 wind energy projects, 3 hydropower projects, 1 transmission project, 2 merchant power plants, and the privatization of a power utility, indicating a shift away from traditional power generation projects.

37. Figure A.2.4 presents trends in the use of financial instruments by PSOD in approved transactions, highlighting the importance of debt. The CFS was used in only a small number of transactions, and equity and partial risk guarantees did not play a significant role in PSOD's infrastructure financings, possibly due to the comparatively low country risks associated with most of PSOD's portfolio. But in recent years, in addition to the greater use of CFS, PSOD's growth has been supported by an increase in the size of transactions and, most importantly, the number of transactions processed (Figure A2.5).

38. While PSOD has achieved significant growth in recent years, risk exposure and headroom considerations made it difficult to expand operations further. PSOD is subject to ADB's prudential exposure limits in the Charter of 10% of ADB's paid-in capital plus reserves plus surplus. This restricts nonsovereign transactions originated by both PSOD and the RDs under the Innovation and Efficiency Initiative framework. The country limit is 25% and the sector limit is 30% of the nonsovereign portfolio. India and PRC operations approached country limits, and power sector operations were reaching the sector limit. The total ordinary capital resources (OCR) allocation for PSOD in 2008 was $1.9 billion, of which $1.2 billion could be used for OCR loans and $0.7 billion for equity and guarantees. With the recent general capital increase, available financing should be less of a constraint going forward.

III. EVALUATION OF ADB ASSISTANCE FOR PPP

A. Assistance for PPPs in ADB's Public Sector Operations

39. Public sector assistance for PPP is assessed by considering ADB strategic positioning, relevance, effectiveness, sustainability, impact, ADB value addition, and ADB performance. Detailed sector-based evaluations are in Supplementary Appendixes F−I.

40. **Strategic Positioning.** This criterion considers the quality of the strategic approach, sequencing, linkages with other operations, selectivity, effort level, and aid coordination. The overall rating for strategic positioning is "substantial." Composite ratings are presented in Table A1.2 (Appendix 1). The rating is on the lower end of the "substantial" range. As pointed out, the lack of corporate strategies for PPP assistance affected related operations at the country level. In only a few DMCs did ADB have repeat assistance for PPP, or had assistance that was integrated with overall sector support efforts, such as Bangladesh (power), India (power, roads), Pakistan (power), the Philippines (power, water), PRC (railways), Sri Lanka (ports), and Viet Nam (water). Only in the power sector, has the sector strategy provided a clear framework for ADB's PPP support and the respective responsibilities of RDs and PSOD. This sector also has had the strongest linkages between ADB support for overall sector reforms and PSP. Although sector reform involving utility restructuring, unbundling, increased competition, independent regulation, and tariff adjustments in line with cost recovery objectives is not necessarily a condition for introducing PPPs, particularly if public utilities act as guaranteed off-takers for greenfield power or bulk water supply plants, it can nevertheless facilitate PSP and improve associated economic benefits. Also, operating concessions and divestments of transmissions and distribution facilities usually require prior reform efforts to ensure their effectiveness. ADB

generally sought to engage in related policy dialogue in DMCs, where it promoted PPPs. The sequencing of sector reforms and PPP-related assistance has generally been appropriate, although the extent and pace of ADB-supported sector reforms, particularly in the transport and water sectors, sometimes lagged behind expectations and limited the scope for the use of PPPs. The effectiveness of assistance for developing overall PPP regulatory and institutional frameworks has been somewhat reduced in a number of assisted DMCs by unaddressed investment constraints in their overall legal and governance environments including lack of political stability, predictable judicial systems, institutional capacity, and adequate procurement policies, as well as the presence of corruption issues. In selecting countries for PPP-related assistance, ADB focused mainly on large and more developed DMCs such as India, Indonesia, Philippines and PRC, which have substantial potential for PPP and have shown high levels of political commitment. This is appropriate considering resource constraints. Recently, there has been some effort to widen assistance to smaller, less developed DMCs. Most of ADB's PPP assistance was sector-focused, with an emphasis in power. PPP-related assistance often accounted for only a small part of ADB’s sector operations in a given country. This has been, at least in part, due to a shift in road and water operations to rural areas and secondary towns in institutional poverty reduction strategies. Those areas have been less conducive to private infrastructure investment. Coordination with other funding agencies has generally been satisfactory.

41. **Relevance.** To assess relevance, the alignment of ADB assistance with government strategies, development needs, and best practices is examined. The overall rating is "relevant." ADB’s PPP support has generally been in line with government objectives and programs at the design stage. In most DMCs infrastructure inefficiencies and/or capacity constraints have affected economic growth. Support for PSP in services provision and investment has been an appropriate approach to development needs. ADB assistance for PPPs usually emulated emerging best practices. For example, in its assistance for PPP frameworks and transactions, ADB promoted the incorporation of private investments in least-cost sector expansion plans and the use of competitive bids in awarding concessions and contracts. ADB recognized early on the potential perils of private power generation projects with power purchase agreements that allocated too many risks to government, and therefore supported renegotiation efforts in the aftermath of the Asian financial crisis and the development of more equitable risk-sharing arrangements. ADB has also sought to support PSP in power transmission and distribution in line with overall power sector reform progress. In the roads subsector, ADB supported PSP schemes reflecting government priorities and objectives, as well as country conditions. For example in the PRC, the Government primarily sought to tap private financing for constructing expressways by partially divesting expressway companies through the stock exchange (referred to as "securitization" by PRC authorities and ADB). ADB had promoted tolling and the corporatization of expressway companies it funded, and initially saw this approach as a logical step in enhancing the financial viability of expressway companies. Subsequently, however, it determined that securitization was an expensive funding source given associated listing costs and levels of returns expected by equity investors. In parallel, ADB promoted the use of BOT modalities, which was feasible due to cost-reflective tolls that could be charged in areas of high traffic density in the PRC. In India, where it was less feasible to fully recover cost through tolling, ADB also supported government schemes under which the government assumed demand (i.e., traffic) risks through annuity payments, or subsidized part of the investment costs through viability gap funding. In the water sector, ADB initially supported bulk water BOT-type projects that did not address underlying sector problems related to water losses and service quality. However, its recent efforts have increasingly emphasized whole system approaches involving management contracts, leases, and affermages (lease-type modality in which the operator and contracting share revenues) that seek to increase overall system efficiencies. Compared with

past sector-based assistance, which focused on developing PPP modalities and individual transactions, ADB in recent years supported government efforts for developing cross-sector legal, regulatory, and institutional frameworks. These structures are important for building and sustaining political commitment and local capacity for larger scale PSP in infrastructure.

42. **Effectiveness.** This criterion is assessed by considering the extent to which anticipated project outcomes have been achieved**.** The overall rating is "effective." The rating reflects that support for developing policy and regulatory frameworks for PPP has been largely effective in reaching intended outcomes, although in many cases, additional assistance will be needed to facilitate the successful implementation of new regulatory regimes and address remaining weaknesses in the overall policy framework (Table 4). Assistance for preparing and implementing specific PPP transactions was only partly effective on the average. Less than half of completed assistance for PPP transactions resulted in actual projects (Table 5). This has been due to a number of factors including lack of commercial feasibility of selected project proposals, which had not been properly assessed, lack of full government and stakeholder commitment to private sector involvement, lack of DMC institutional capacity, insufficient levels of ADB support, the Asian financial crisis, or lack of investor interest due to perceived risks. Projects that did materialize, generally were well structured with appropriate risk allocation mechanisms, and were awarded in line with best practices. Also partly effective were earlier financial intermediation loans[19] that financed infrastructure PPP subprojects and project development facilities.[20] There was little demand for those stand-alone facilities, as evidenced by low utilization levels, because existing underlying structural constraints to PSP in infrastructure and the development of PPP projects remained unaddressed. Ongoing support to specialized infrastructure finance institutions in countries that have improved conditions for PSP and where there is a ready pipeline of bankable projects, particularly in India, is likely to be more successful. ADB-funded complementary public sector investments and equity contributions to PPPs usually facilitated the development and financial structuring of PPPs. The use of service contracts for the private operation and maintenance of ADB-financed infrastructure has yet to show success.

Table 4: Assistance for Developing PPP Policy, Regulatory, and Institutional Frameworks

Sector	Country	Expected Project Outcome	Attainment	Likely Impact on Sustainable PSP
Power	Bangladesh	• Private sector power generation policy Establishment of a power cell within BPDP to help implement private sector investments	Implemented Implemented	Medium - After initial success, changing political commitment and capacity constraints reduced potential impact of earlier measures. However, recent assistance, which is addressing governance issues,

[19] ADB's completed infrastructure financial intermediation lines were partly effective, as only 43% of the total approved amount of $700 million was actually disbursed. The lines helped finance 20 infrastructure projects with PSP in the power, road, port, water supply, and waste management sectors. Some projects had demonstration effects.

[20] A facility for local government-level PPPs in the Philippines resulted in only one project, mainly due to limited capacity of the facility manager and a lack of suitable projects resulting from unaddressed structural problems. Ongoing assistance for the PDF in Indonesia looks promising. The unit is functional and working on a number of project proposals that appear to be commercially feasible. Similar assistance in Pakistan has been slow to get off the ground, mainly due to continuing deficiencies in the enabling environment for PPPs in the non-power sectors (the focus of the PDF), and generally declining investment conditions. In the 3 years since loan effectiveness, only 7% of the approved loan TA amount has been committed, and less than 2% disbursed. In India, an ADB TA identified a number of potential PPP projects; however, no PPP transactions have yet been brought to closure, given the comparatively short time frame.

Sector	Country	Expected Project Outcome	Attainment	Likely Impact on Sustainable PSP
		• Comprehensive new policy framework Including new bidding framework for promoting PSP in all power subsectors	Assistance ongoing	is likely to be more effective.
	Bhutan	• Policy framework for private and public participation in hydropower	Implemented	Medium - Facilitated a PPP project, but scope for more PPPs comparatively limited due to size of the country
	India	• Improved connections of IPPs to grid (Madhya Pradesh) • Incorporation of IPPs in least-cost sector development plans (Gujarat) • PSP in power distribution (Assam)	Implemented Implemented Implemented	Medium - Policy dialogue limited to one state
	Indonesia	• Renegotiation of IPPs • Development of regulatory framework for small IPPs	Implemented Not implemented, as recommendations conflicted with existing law.	Medium
	Pakistan	• Regulatory framework for IPPs in hydropower	Ongoing	Medium, limited investor interest in the foreseeable future due to general country risk considerations
	Philippines	• Privatization of NPC assets and greater scope for PSP in transmission • Integration of PPAs in competitive power markets	Largely Implemented Ongoing	High High, once fully implemented
	PRC	• Inputs to regulations for foreign direct investment (FDI) in the power sector	Implemented	Medium - FDI in the sector has been decreasing due to interest of domestic project companies.
Roads	India	• Introduction of new PPP modalities in roads sector • Use of PPP in NHDP/Outsourcing of operation and maintenance under concessions • Development of regulatory framework for PPP (Madhya Pradesh)	Implemented Implemented Implemented	High -Various TA projects contributed to development of PPP modalities that have been utilized in numerous transactions. Medium -Policy dialogue limited to one state
	Indonesia	• Establishment of toll-road regulator • Introduction of toll road tariff setting through competitive bidding	Implemented	Medium - Regulator not fully independent
	Pakistan	• Government PPP policy for highways	Draft policy has not yet been approved	High, if fully implemented.
	Philippines	• Outsourcing of operation and maintenance under management contracts	Implemented for pilot projects	High, if expanded beyond pilots.
	PRC	• Analysis of various PPP and financing modalities for expressways and related capacity	Completed	Medium/Low - Study results probably contributed to phasing out of the equitization modality, but other TA

Sector	Country	Expected Project Outcome	Attainment	Likely Impact on Sustainable PSP
		development		recommendations regarding the use of asset-backed securitization and Government financial support for PPPs have not been adopted yet.
	Viet Nam	• PPP framework for expressways	Assistance ongoing	High, if adopted and implemented.
Rails	Pakistan	• Draft PPP Policy for railways and related capacity building within MOR	Draft policy prepared	High, if adopted and implemented.
	Philippines	• Action plan for restructuring of the Philippine National Railway including leasing out of freight forwarding to the private sector.	Not implemented	
	PRC	• Introduction of PSP in rail operations (provision of container terminals for private logistics operations, outsourcing of ancillary services)	Implemented	Medium - One among a number of initiatives to introduce private sector involvement in railways operations and financing.
	Sri Lanka	• Identification of PPP options for SLR	TA recommendations were not implemented, due to limited commercial potential of railways	
	Thailand	• Refinement of rapid transport master plan for Bangkok	Implemented	Medium (limited to Bangkok)
Ports	Indonesia	• Identification of reform options including PSP for ports under local government jurisdiction.	Yes	Medium, TA recommendations were reflected in new ports legislation. A pipeline of port projects that were identified by local governments is under review.
	Pakistan	• Privatization of Karachi and Qasim port container terminals and leasing out the cargo berths at Karachi Port.	Policy dialogue ongoing	High, if fully implemented.
	Sri Lanka	• Private operation of Colombo port terminals.	Policy dialogue ongoing	Medium, if implemented. Other TA recommendations with regard to new competition legislation and corporatization of JCT─while valid─ have not been implemented due to political constraints.
Water	Indonesia	• Inputs for water resources law, which provides for decentralized water management and private sector involvement in the sector.	New water resources law adopted	Medium, as only few water districts are financially viable.
	Pakistan	• National water policy includes provisions for PPP.	Adopted	Medium, due to limited investor interest and tariff issues.
	Philippines	• Strengthened MWSS regulator managing Manila water concessions	Implemented	High

Sector	Country	Expected Project Outcome	Attainment	Likely Impact on Sustainable PSP
	PRC	• Identification of key constraints to PPP in the water sector	Not yet. Unclear whether TA recommendations will be fully implemented.	
Cross-Sector	India	• Enhanced capacity of central, state, and sector-level PPP cells	Assistance ongoing. TA has so far helped (i) enhance the capacity of the DEA PPP cell to mainstream PPPs through coordination of implementation and technical advice, (ii) the 16 PPP cells and 7 PPP central celss in line ministries in the participating states create awareness of the benefits from and potential for PPPs and strengthened their capacity for policy and project development, and (iii) identify about 30 potential PPP projects in the participating states and ministries for further assistance.	High
	Indonesia	• PPP legislation • Establishment of central PPP unit • Establishment of PPP risk management framework for government support • Establishment of infrastructure financing institution • Establishment of land acquisition framework to facilitate PSP in infrastructure	Legislation was adopted and relevant institutions set up. Risk management framework for government support for PPP schemes is still under development.	Medium/high- some key constraints to PPP remain unaddressed.
	Pakistan	• PPP policy • Review of need for concession legislation • Establishment of dispute resolution mechanisms	Ongoing	Medium/low- implementation progress has been very slow, indicating issues on commitment/capacity, while decline in overall investment conditions deters foreign investment.
	Philippines	• Changes to Implementing rules and regulations of BOT Law	Adopted	Low
	Thailand	• Inputs for PPP legislation	Adopted	High, but comparatively low value addition by ADB

BPDP = Bangladesh Power Development Board, BOT = build, operate, transfer, IPP = independent power producer, JCT = Jaya Container Terminal, MWSS =Manila Water Supply System, NPC = National Power Corporation, PPA = power purchase agreement, PPP = public-private partnership, PRC = People's Republic of China, TA = technical assistance.
Source: Independent Evaluation Department.

Table 5: Assistance for PPP Transactions

Sector	Country	Project Number	Resulting PPP Transaction	PPP Modality	Benefits	Subsequent PPP Transactions
Power	BAN	2338-BAN 4953-BAN	AES Meghnaghat Power Plant TA ongoing	BOO	Capacity expansion; Reduction in electricity costs	Yes, but not of similar standard.
	BHU	**2464-BHU**	Dagachhu Hydropower	Joint venture	Foreign exchange earnings	-
	IND	2742-IND 3380-IND	None, TA cancelled due to viability concerns None, could not obtain approval for pricing obtained from winning bidder	BOT Transmission concession	-	-
	LAO	2054-LAO/**1329-LAO** **2162-LAO**	Theun Hinboun Power Plant (ADB financing of Government equity stake) Nam-Theun 2 Hydroelectric Project (ADB financing of Government equity stake)	Joint venture Joint venture	Foreign exchange earnings	Yes -
	PAK	3502-PAK	Karachi Electric Supply Corporation	Partial divestment	Reduced need for government financial support; Efficiency gains.	-
	PRC	2170-PRC 2730-PRC	None. Waigaoqiao project undertaken with public (World Bank) funding to improve pricing and timeliness. None. Project could not reach financial closure.	BOT	-	-
	RMI	**1694-RMI**	Not as originally envisaged. Kwajalein Atoll Joint Utility Resources managed by quasi private utility company.	Management contract	Unclear	-
	VIE	4670-VIE **2353-VIE** 4845-VIE	Mong Duong Power Plant (Complementary ADB-financed public investment for Mong Duong) TA ongoing	BOT	Prior to operations	-
Roads	IND	2986-IND 4271-IND **1747-IND** **1839-IND**	Identification of PPP projects within NHDP and development of related framework Surat Manor Expressway PPPs along national highways sections 4 and 8 (Western Transport Corridor). ADB-financed complementary public investments in highway sections that are not suitable for PSP.	BOT BOT BOT and operations and maintenance concession for ADB-financed investment	Reduction in construction and implementation delays/ Additional capacity	Yes

Sector	Country	Project Number	Resulting PPP Transaction	PPP Modality	Benefits	Subsequent PPP Transactions
		1944-IND	PPPs along East West Corridor. ADB financed complementary public investments in highway sections that were not suitable for PSP.			
	PHI	3524-PHI	Several pilots	Concessions for operation and maintenance	Cost savings	Likely
	PRC	2649-PRC/ 3102-PRC 3569-PRC	None. Feasibility studies did not confirm viability of proposed projects. None, project implemented with public sector funding	BOT BOT	- -	- -
	SRI	4178-SRI	None due to change in government commitment to PSP	-	-	-
	VIE	4695-VIE 7009-VIE	TA ongoing TA ongoing	Concessions for operation and maintenance	Cost savings	-
Ports	INO	2386-INO 2402-INO **1559-INO** 4144-INO	None, ADB financing cancelled due to Asian financial crisis None. Regulatory framework at the time was not conducive.	Operating concession for onshore facilities	-	TA recommendations were reflected in structure of other projects
	SRI	**1841-SRI/ 2319-SRI**	Colombo Port Expansion (not yet awarded; only one bid was received).	Operating concession for terminal operations	Efficiency gains	-
Rails	CAM	4645-CAM	Cambodia (not yet awarded)	Operating concession	Efficiency gains and additional capacity	-
	PRC	4724-PRC	TA results unclear	BOT	-	-
	THA	4676-THA 4904-THA	Bangkok MRT System	Integrated ticketing system for various lines; Concessions for operation and maintenance	Efficiency gains	-
Water	IND	**1813-IND/ 2293-IND** 4809-IND **2312-IND**	Kolkata water utility water metering (implementation ongoing) TA ongoing Several pilots in municipalities in North Karnataka (TA ongoing)	Service contracts Performance-based management contracts	-	-
	INO	2837-INO	None due to (i) municipalities' desire to develop new water sources prior to privatization; (ii) the consideration of an unsolicited proposal; (iii) lack of a regulatory framework; (iv) reluctance of the water utility to consider PSP in the existing service areas; and (v) reduced	BOT	-	-

Sector	Country	Project Number	Resulting PPP Transaction	PPP Modality	Benefits	Subsequent PPP Transactions
		3804-INO	private sector interest in the wake of the Asian financial crisis. None, due to lack of conducive policy and regulatory framework for PPP at the local government level	BOT	-	-
	NEP	**2058/9-NEP**	Not implemented, as originally envisaged. Loan condition requiring PBMC was waived and replaced with commitment to have water concession operated by non-commercial entities such as NGOs and municipalities.	Performance-based management contract (PBMC) with a private operator for operating the water and wastewater systems in Kathmandu	-	-
	PHI	2502-PHI **2012-PHI**	None, mainly due to lack of commercial viability None, due to preference for unsolicited proposals, reduced demand for new bulk water, and cheaper bilateral funds	BOT/operating concessions BOT	- -	- -
	PRC	2804-PRC	Chengdu Water Supply Project	BOT	Comparatively low EIRR, as demand was overestimated at project design stage.	Yes
	SAM	**2026-SAM**	Sogi Wastewater Treatment Plant (under construction)	Service contract for design, installation, and operation of the plant	Efficiency gains (least-cost option)	-
	THA	1907-THA	Pathum Thani Water Privatization	Facilitated bulk water BOT project	Increase in water connections and labor productivity	Yes
	VIE	7089-VIE 7091-VIE 7144-VIE	TA projects ongoing	Assessing potential for performance-based management and lease contracts	Efficiency gains	-

BAN = Bangladesh, BOT = build-operate-transfer; CAM = Cambodia, EIRR = economic internal rate of return; IND = India, INO = Indonesia, LAO = Lao People's Democratic Republic, NHDP = National Highways Development Program, PHI = Philippines, PRC = People's Republic of China, PSP = private sector participation, SRI = Sri Lanka, THA = Thailand, VIE = Viet Nam.
Note: Highlighted project numbers indicate loan, rather than TA projects.
Source: Independent Evaluation Department.

43. **Sustainability.** This assesses the likelihood of project outcomes being maintained. The rating for completed assistance is "less likely sustainable." The same factors that reduced the achievement of assistance outcomes also affected their sustainability. In addition, policy changes and capacity issues hindered the continuation of project attainments. Comparatively little assistance was extended for developing PPP capacity in the past. Only in recent years,

more systematic efforts were made to help central governments and ministries build up PPP units, which together with ongoing support for cross-sector PPP regulatory and policy frameworks are likely to improve the sustainability of ongoing and future ADB assistance. ADB has also sought to address PPP capacity constraints by collaborating with the Asian Development Bank Institute (ADBI) on related efforts.[21]

44. Despite improved approaches for PPP assistance, waning political commitment and lack of stakeholder support has been reducing the long-term prospects of ongoing PPP support in Nepal and Sri Lanka, and to some extent in Pakistan. In Nepal and Sri Lanka, the conflict situation reduced the scope for private sector involvement in the economy.

45. **Impact/Additionality.** This assesses the level of follow-on transactions, the economic impact of supported PPP transactions and approaches, improvement in PPP capacity, and ADB value addition. Overall, impact is assessed to be "modest," particularly with regard to the likely effects of ADB assistance on additional private infrastructure investment (Table 5) and capacity development. Many supported policy and regulatory changes under standalone TA were necessary, but not sufficient to bring about more PSP, as they were narrowly focused on specific issues. Table A1.3 (Appendix 1) gives composite ratings. While ADB contributed to a number of important PPP initiatives, its role in bringing about PPP transactions in Asia has been limited so far, although ongoing support for comprehensive government infrastructure reform and PPP programs, particularly in India and Indonesia could be more successful. The economic impact of completed ADB-supported PPP transactions and promoted PPP approaches has likely been positive. Value addition in conjunction with ADB's public sector operations was mainly achieved through TA and—to a lesser extent—through policy dialogue that helped prepare PPP policy frameworks. Several PPP transactions benefited from ADB's involvement as honest broker and its due diligence on safeguards issues.

46. **ADB Performance.** This assesses staff expertise, resource levels and deployment, consultant performance, internal coordination, quality and quantity of PPP research, and responsiveness. Overall, ADB performance is assessed to be "partly satisfactory." The rating takes into account project design issues, which reflect comparatively low levels of PPP-related staff expertise and resources outside the water sector in RDs. It also indicates the limited extent of in-house research on sector-relevant regional PPP experiences and applications, which reduced the potential for related policy dialogue and information exchanges. Although internal coordination worked well with regard to power sector PPP assistance, cooperation mechanisms and incentives could be improved for the other sectors as well, to benefit from ADB's unique organizational structure that combines public and private sector operations under one roof. Consultant performance and ADB responsiveness to client concerns have generally been satisfactory. Table A1.4 gives composite ratings.

B. PSOD Support for PPPs

47. The assessment of PSOD assistance for PPP considers strategic positioning, development impacts and outcomes, ADB investment profitability, ADB additionality, and ADB work quality.

[21] ADBI held a series of country and regional-level seminars with participation from ADB staff to promote PPP concepts. It has also supported PPP capacity building events and tools together the World Bank Institute. The former events also sought to facilitate networking and knowledge exchanges among PPP agencies worldwide.

48. **Strategic Positioning.** This assesses selectivity and synergy/coordination with public sector operations. Because PSOD's financial products are subject to excess demand, PSOD can take a selective approach when determining which projects it wishes to finance within its overall resource envelope, headroom, and exposure limits. A look at the geographic distribution shows that ADB's PPP investment covers only 13 DMCs, whereas the World Bank's private participation in infrastructure (PPI) database shows that 31 ADB DMCs, including some in the Pacific region, have PPI investments. Although DMCs such as Republic of Korea, Malaysia, and Thailand do not require ADB participation, this result indicates that demand for private infrastructure finance in DMCs is greater and wider than ADB has been able to cover. PSOD operations have been concentrated mainly in the more developed DMCs. Nevertheless, PSOD has been seeking opportunities in smaller and frontier DMCs and has managed to have successful operations in low-income countries such as the Lao PDR. Frontier countries often need significant upstream hand-holding and capacity-building at the state enterprise/sponsor level before a project can be brought to a stage where it can be financed. To put ADB's operations into perspective, it should be noted that the International Finance Corporation (IFC) had a similarly small scope of operations, investing in only 11 of ADB's DMCs.

49. In terms of sector allocation, ADB's portfolio is overwhelmingly dominated by energy (76% by volume and 65% by number), followed by transport (16% by volume and 10% by number), and then by telecommunications, and water and sanitation. In comparison, 44% of total PPP projects in ADB DMCs are in energy, 29% in transport, 16% in water and sanitation, and 11% in telecommunications.[22] But when these PPP investments are broken down by investment volume, the percentages and the order of sectors change substantially, showing 35% each for telecommunications and energy, 22% for transport, and 7% for water and sanitation. Investment needs in the power generation sector are particularly large, both from a national and a sector perspective, acting as further stimulus for countries to develop IPP programs. Also, IPP projects are a well-understood structure in financial markets with relatively low risk. Nevertheless, the data indicate that there is scope for PPP in other sectors as well, which has not been fully utilized by PSOD as borne out by the limited participation in the roads and water subsectors, and virtual absence from the port subsector, which accounts for a large portion of transport PPPs in Asia. It must be considered, though, that many existing road PPPs did not involve foreign investment and, therefore, did not require PSOD financing. While PSP in the water sector has generally been limited to a wide range of issues (see Supplementary Appendix H), the fact that 67% of approved PSOD water transactions had to be cancelled due to disputes between project promoters and authorities, limitations of the BOT modality, and unresolved tariff issues highlights PSOD's particular difficulties in identifying viable transactions in this sector despite numerous attempts to become more engaged. Within the power sector, greater emphasis has been on nontraditional areas, particularly the development of renewable energy sources, and PSP in power transmission and distribution. Levels of investment required in power distribution and transmission are considered low compared with capital requirements in power generation.

50. During the last couple of years, PSOD—partly as a result of increased staff resources especially in larger resident missions, and greater alignment with public sector operations—appears to have been more proactive in business development, and has also helped develop several projects including a power transmission project in Cambodia. Earlier, it had mainly relied on sponsors pitching proposals, which was evidenced by the fact that in a number of transactions, ADB got involved only during project negotiations or financial closure.

[22] World Bank. 2009. Private Participation in Infrastructure (PPI) Project Database. Available: http://ppi.worldbank.org/.

ADB cooperated on six transactions, all in power, with IFC, when there was a justified need for involving both institutions to share risks. In general, ADB's and IFC's activities have not overlapped much; however, the situation might change, as IFC is set to significantly expand its infrastructure operations in Asia.

51. Only a few PSOD transactions have been the direct result of ADB's public sector operations. For example, in the Meghnaghat Power project, ADB took the lead in supporting reforms to the Bangladesh power sector, and facilitating private sector investment by helping develop a master plan for the sector, and preparing feasibility studies and tender documents. In the case of Chengdu Water, ADB provided assistance through the RD for preparing a feasibility study and bid documents, the tender of the project, and then provided financing to ensure the project was successfully executed. In the case of the Tala Delhi project, ADB played a catalytic role in identifying the project under its 1995 Power Transmission Improvement (Sector) Project and supported the development of an enabling environment for PSP in transmission infrastructure. In the Philippines, PSOD approved financial assistance to facilitate the privatization of government generation assets (Masinloc and Calaca), which had been supported under ADB's sector policy dialogue. Similarly, PSOD's participation in the financing of the Manila North Tollway was the result of ADB assistance for preparing a national transport strategy, which included components that were suitable for private investment, and the development of institutional capacity to continue the planning process.

52. Considering recent developments, ADB's strategic positioning has been improving, but can be further strengthened through better coordination with public sector operations and proactive identification of PPP opportunities in line with overall CPS objectives.

53. **Development Impacts and Outcome.** These are evaluated under the following subheadings: (i) private sector development; (ii) business success; (iii) economic sustainability; and (iv) environment, social, health, and safety performance. The primary private development impacts and outcomes achieved by PPP projects were the demonstration impacts confirming the feasibility of the PPP concept, risk mitigation that helped mobilize private sector capital, and efficient management practices and productivity gains in providing infrastructure. The most important impact of the PPPs was their ability to attract private capital to finance projects that would otherwise have been financed by the government directly or indirectly through the use of state-owned enterprises (SOEs). It is difficult to determine the magnitude of this financing impact, but it is likely to be large. Governments have limited capacity to borrow directly, and most DMCs have been reducing levels of external debt to minimize risks of macroeconomic instability. SOEs can potentially incur domestic debt, but in practice local financial markets are shallow, and significant inefficiencies can arise when SOEs deliver infrastructure services. In comparison, PPPs can access both local and international capital markets, and achieve efficiency gains through competitive bidding of PPP contracts. PSOD was able to support these initiatives through relatively minor contributions of ADB funding.

54. Where PSOD implemented PPP projects, it was successful at mobilizing finance, helped support the expansion of the private sector in infrastructure sectors, and increased competition. In some cases experience gained with the PSOD projects contributed to changes in the regulatory framework and contractual arrangements for PPPs. While PSOD's PPP projects have been successful and have included many "pathfinder projects" (Table 6), the impact on further PPP development has been somewhat reduced due to continuing weaknesses in the enabling environment; changes in government commitment to PSP (e.g., in Pakistan and Sri Lanka); underlying issues with PPPs, which can be relatively inflexible instruments, particularly in times of economic crises; and lack of demonstration potential (e.g., the Guangzhou Pearl

River project). Nevertheless, despite the slow progress, PPPs are now accepted procurement modalities in the power sector (PSOD has had repeat transactions in most assisted DMCs), and their use is increasing in other sectors as well. For example, the PRC Government expects PPPs to form one of the main procurement modalities for its large water and sanitation investment program. Given these factors, private sector development is rated "satisfactory."

Table 6: Impact on PPP Investment in the Country

Project Name/ Company	Country	PPP Modality	CFS ($ million)	Demonstration Effects	Subsequent PPP Investment	Major Issues
Guangzhou Pearl River Power Co. Ltd.	PRC	Joint venture	0.0	None	no	
Batangas Power Corporation	PHI	BOT	0.0	Fast-track project under least-cost sector expansion plan and one of the first BOT projects.	yes	Uneven risk allocation
Hopewell Power	PHI	BOT	0.0	Fast-track project under least-cost sector expansion plan	yes	
Fauji Kabirwala Power Co. Ltd.	PAK	BOO	65.0	One of the first IPPs in the country; state-of-the-art technology	yes	Not competitively bid; related transmission system was not upgraded.
Himal Power Ltd.	NEP	BOT	0.0	First BOT hydro project in the country, pricing comparable with that of other hydro projects; project included in least-cost sector expansion plan	yes	Usable energy reduced to 54% of capacity due to lack of pondage facilities.
Fujian Pacific Electric Company	PRC	BOT	0.0	Foreign financing of large-scale power plant	no	
South Asia Gateways Terminal	SRI	BOT	0.0	First port BOT project in the country	likely, but different PPP modality used	
Chengdu GEM Waterworks	PRC	BOT	21.5	First competitively bid water supply BOT in the country; model contractual arrangements	yes	Demand by water utility was overestimated.
Phu My 3	VIE	BOT	20.0	One of the first IPPs in the country; competitively bid; model contractual arrangements	yes	
Meghnaghat	BAN	BOO	25.0	One of the first IPPs; competitively bid; model contractual arrangement; state-of-the-art technology	yes, but did not use best-practice standards	
Manila North Tollways Corporation	PHI	BOT	0.0	First toll road BOT project in the country	yes	
Tala-Delhi Transmission	IND	BOT	0.0	First transmission BOT project in the country demonstrating viability of PSP	not yet	

BAN = Bangladesh, BOO = build-operate-own, BOT = build-operate-transfer, CFS = complementary financing scheme, IPP = independent power producer, NEP = Nepal, PAK = Pakistan, PHI = Philippines, PPP = public-private partnership, PRC = People's Republic of China, PSP = private sector participation, SRI = Sri Lanka, VIE = Viet Nam.
Source: Independent Evaluation Department.

55. The business success of PPP projects was evaluated by estimating the margin between a project's financial internal rate of return (FIRR) and its weighted average cost of capital. With one exception, the results for the projects evaluated were satisfactory or better. Table 7 contains PSOD estimates when the project completion report (PCR) was prepared, whereas Table 8 shows findings for the project performance evaluation report (PPER). Performance that was below expectation could have been due to a regulatory decision that was beyond the control of the project financiers. The financial results do not demonstrate any clear trends by country or sector. Overall, the project financial returns are in line with expectations and derive a rating of "satisfactory."

Table 7: Business Success of PPP Projects – PCRs

Project Name/Company	FIRR (%)	WACC (%)	Rating
Power 1	15.6	–	–
Power 2	17.5	15.9	Satisfactory
Power 3	16.6	11.4	Satisfactory
Power 4	18.3	11.6	Satisfactory
Power 5	13.0	9.6	Satisfactory
Power 6	12.5	7.9	Satisfactory
Power 7	14.5	12.9	Satisfactory
Power 8	–	–	–
Power 9	–	–	–
Transport 1	30.2	10.1	Excellent
Transport 2	10.4	5.1	Satisfactory
Water	9.4	8.2	Satisfactory

– = not available, FIRR = financial internal rate of return, PCR = project completion report, WACC = weighted average cost of capital.
Source: Private Sector Project Completion Reports, 1994–2008.

Table 8: Business Success of PPP Projects – PPERs

Project Name/Company	FIRR (%)	WACC (%)	Rating
Power 2	16.1	11.1	Satisfactory
Power 8	8.7	4.1	Satisfactory
Power 9	6.5	7.4	Partly Satisfactory
Transport 1	26.1	15.3	Excellent
Water	10.4	9.2	Satisfactory

FIRR = financial internal rate of return, PPER = project performance evaluation report, WACC = weighted average cost of capital.
Source: Private Sector Project Performance Evaluation Reports.

56. Economic sustainability is evaluated by estimating the economic internal rate of return (EIRR) generated by projects. Table 9 summarizes the EIRRs reported in the PCRs and PPERs for evaluated PPP projects. The EIRRs for PPPs are satisfactory or excellent. Except for two projects, the EIRRs were higher than the FIRRs, which indicates returns to society beyond the company owners and financiers. For example, the majority of power PPPs helped address serious power shortages which affected economic growth. The achieved levels of economic returns are similar to those achieved under comparable public sector investments. While there are some methodological concerns about how PSOD is calculating the EIRRs (Supplementary Appendix E), the overall results indicate that economic impacts are "satisfactory."

Table 9: Economic Sustainability of PPP Projects

Project Name/Company	PCR-EIRR (%)	PCR Rating	PPER-EIRR (%)	PPER Rating
Power 1	17.2	Satisfactory		
Power 2			18.0	Satisfactory
Power 3	20.1	Excellent		
Power 4	30.7	Excellent		
Power 5	12.1	Satisfactory		
Power 6	25.8	Excellent		
Power 7	38.3	Excellent		
Power 8			11.2	Satisfactory
Power 9			18.5	Satisfactory
Transport 1	38.8	Excellent	27.1	Excellent
Transport 2	19.3	Satisfactory		
Water	11.0	Satisfactory	6.0	Partly Satisfactory

EIRR = economic internal rate of return, FIRR = financial internal rate of return, PCR = project completion report, PPER = project performance evaluation report,
Source: Private Sector Project Completion Reports, 1994–2008.

57. PSOD's infrastructure projects must comply with ADB's policies and procedures for social and environmental safeguards. Over the last 2 years, PSOD has increased the level of resources assigned to develop social and environmental compliance programs and monitor impacts, including on-site inspection in some cases. The arrangements have been effective for mitigating social and environmental project risks.

58. PSOD PCRs did not start to report on safeguard aspects until 2002. The PCR for Himal Power reported that environmental, social, health, and safety plans met international standards and they had largely complied with requirements. The PCR for the Colombo port project reported the project company had adequately met safeguard standards and complied with local laws. The project created significant employment opportunities for local staff. The PCR for Chengdu Water confirmed that the project had met environmental standards, and no negative impacts were reported. The PCR for the Phu My 3 power project indicated that environmental, social, health, and safety impacts had been adequately managed and it helped improve access to electricity in the country and created jobs. The PCR for the Meghnaghat project confirmed that the environmental action plan had been fully implemented, and jobs were created and ancillary projects undertaken such as the development of a local hospital. The PCR for the Manila North Tollway project reported that the project met required standards and the project company had put in place systems that ensured high standards of safety. The PPERs prepared by IED confirmed the findings of the PCRs that ADB's social and environmental safeguard measures are working effectively. This result is partly due to the high-profile nature of large infrastructure projects, and the significant political risks that arise if sponsors do not manage social and environmental impacts effectively. However, the primary reason appears to relate to the higher standards required by agencies such as ADB. Sponsors indicated that they value ADB participation as it provides a way of confirming that adequate standards of environmental, social, health, and safety management are put in place and observed. Given these factors, a rating of "satisfactory" has been assigned to environmental, social, health, and safety performance. On the basis of the findings, the overall rating for development outcomes and impacts is "satisfactory."

59. **ADB Investment Profitability.** The most important source of ADB's income from its PPP portfolio is its loan margins. ADB does not allocate administrative costs to individual transactions to derive an estimate of a project's return on ADB's capital, nor set a minimum

targeted risk-adjusted returns on capital employed for loans for benchmarking purposes. As a result, it is only possible to determine profitability by referring to interest rate margins charged by other commercial banks participating in the same transactions, and to other ADB transactions in projects with a similar risk profile. A review of PSOD's PPP loan margins confirmed they were in line with other commercial lenders, indicating that ADB is earning a competitive return on its investment. ADB has had relatively few problems with nonperforming loans in its operational PPP portfolio. Even when disputes have arisen, the available evidence indicates that ADB has rarely taken a loss on its PPP loans and investments. PSOD's risk ratings for its operational PPP projects as of 31 December 2008 generally indicate satisfactory to strong performance, with only one marginal rating. As a result, ADB investment profitability is rated "satisfactory."

60. **ADB Additionality.** The assessment is based on whether (i) ADB finance was a necessary condition for the timely realization of PPP projects, and (ii) ADB's contribution and function improved development impact. The evidence gained from the historical review of PSOD's PPP projects indicates ADB's participation has helped mitigate financial risks of PPP by catalyzing private investment in PPPs and improving financial structures, which facilitated the financial closure of PPP transactions and enhanced their financial sustainability. In the light of this, the rating for ADB additionality is "satisfactory."

61. The total volume of investment in private infrastructure projects covering ADB's 40 borrowing DMCs during 1990–2006 was $358 billion.[23] ADB's total PPP investment (including CFS) of $4.1 billion represents only 1.1% of this amount. When relating the number of ADB's investments with the total number of about 1,500 private infrastructure investments in the region, the share is 3.2%, a little larger but still marginal. Nevertheless, in assessing additionality, it must be considered that ADB-supported projects have not only generated additional private sector funds for the transactions it participated in, but also catalyzed additional PPP transactions in a number of DMCs. IFC managed to undertake a similar number and volume of PPP transactions in ADB's DMCs, but it was more active in other regions.

62. In most evaluated transactions, the concession agreement had already been tendered by the time PSOD became a participant. In fact, PSOD prefers a competitively bid transaction and is involved in a transaction only if ADB is invited by private sector investors. These aspects discourage PSOD involvement prior to bidding which in turn impacts on the concession structure. This structure limits opportunities for ADB to contribute to the broader economic impacts of the project, and its primary value addition occurs by facilitating the financial closure and implementation of PPP projects, and strengthening environmental and social safeguards.

63. **ADB Work Quality.** This criterion addresses (i) screening, appraisal, and structuring; (ii) monitoring and supervision; and (iii) role and contribution to the project. The overall rating for ADB work quality is "satisfactory," based on adequate PSOD performance in most evaluated projects despite deficiencies in its work processes. As regards project selection, it is not clear how PSOD interacts with the RDs, and the development strategy that will be pursued in each infrastructure sector is not defined. There are also concerns about the high level of project cancellations, which might indicate weaknesses in screening project parameters and assessing risk. This problem appears to be related to difficulties influencing the design of projects prior to bidding, and pressures on PSOD to take projects to the Board before project financial structures are finalized so as to avoid delaying financial closure. PSOD's reporting procedures continue to emphasize approval over implementation, resulting in possibly less attention to the latter.

[23] World Bank. 2009. Private Participation in Infrastructure (PPI) Project Database. Available: http://ppi.worldbank.org/.

64. PSOD's appraisal methodologies can be strengthened and expanded to more accurately reflect PPP project parameters (see Supplementary Appendix E). The quality of market and technical due diligence appears variable. Typically, technical due diligence is outsourced to a Lenders' Engineer. The PPER for a power project found that the technology was inefficient, and the project tariff had to be renegotiated. In a water supply project in the PRC, demand estimates were substantially out of line with market requirements. A power transmission project in India experienced a large construction cost overrun. While it can be argued that, by definition, infrastructure projects have large technical risks, more can potentially be done to minimize such risks.

65. PSOD's role in project structuring has been limited, as it often only entered the transaction when the basic design, contractual arrangements, and financial structure had already been determined. This situation reflects PSOD's rather opportunistic approach to project origination in the past, which was partly due to limited staff resources and lack of access to specialized expertise for TA, but also to its preference to participate in transactions only if invited by private sector investors to avoid crowding out private sector initiative. The financial and legal structures used by PSOD appear to be well-designed, and even when the underlying economic fundamentals of projects have not been ideal, there have been relatively few problems securing funding. Nevertheless, the PPERs prepared on PPP projects in 2008 found that two of three projects utilized debt-to-equity ratios that are typically 70:30 irrespective of project risks, and debt service coverage ratios were invariably close to 1.2 in the expected case. These structures were not supported by comprehensive and credible risk analyses that identified ADB's expected loss in various scenarios and linked the findings to the pricing of project risk. There is scope for introducing more sophistication and flexibility in deal pricing and structuring, e.g., using progress and performance-linked fee structures and interest margins that act as performance incentives. Also, PSOD has been making greater use of local currency in recent years by issuing bonds in domestic currency and accessing the domestic swap markets. So far about 10% of ADB's OCR exposure in PPPs has been converted to local currency. This helps reduce exchange rate risks, which is one of the primary constraints limiting the use of PPPs in DMCs.

66. Shortcomings in general PSOD credit approval and administration processes, particularly weaknesses in the credit risk function, the separation of credit and pricing decisions, lack of separation in functional responsibilities for credit origination and management,[24] and absence of an independent risk rating after credit approval, are being addressed by revised credit processes for nonsovereign operations.[25] New credit processes for nonsovereign transactions should help strengthen ongoing credit monitoring. Also, a new investment committee will be responsible for both, credit and pricing decisions.

67. The Private Sector Infrastructure Finance Division (PSIF) is required to prepare annual reports on projects starting 12 months after initial drawdown. The annual project reports provide

[24] PSOD project teams have been responsible for both, project origination and management functions. This arrangement allows consistency and continuity between project processing (including negotiation) and monitoring, but does not take into account the potential for conflict of interest that can arise between structuring projects and then reporting on performance.

[25] In December 2008, the President of ADB established an internal task force with a mandate to review ADB's private sector development and nonsovereign operations, and to make recommendations on (i) alignment with Strategy 2020, (ii) interdepartmental collaboration, (iii) development effectiveness, and (iv) credit process. Its findings and recommendations were presented in a Board information paper: ADB. 2009. *Private Sector Development and Nonsovereign Operations–A Model for Improved Strategic Alignment, Interdepartmental Collaboration, Development Effectiveness, and Risk Management* (IN87-09). Manila, and formalized through the new Operations Manual Section D10 for Nonsovereign Operations dated 7 August 2009.

a reasonably comprehensive assessment of project compliance with ADB's development objectives, project covenants, insurance policy requirements, safeguards and reporting requirements. The main weaknesses with the annual reports are the lack of data on development indicators, and no comparison is made of actual versus forecast targets. PSOD prepares quarterly reports for the Board and the Management, but these reports focus only on the financial aspects of projects, and provide limited data on development results or critical issues impacting on the infrastructure portfolio. The revised organizational structure of PSOD, which includes a new division to help improve the development effectiveness of PSOD operations and their coordination with public sector operations should assist in this regard.

68. In terms of role and contribution, PSOD participation in PPP projects was an effective mechanism to help address project implementation issues. For example, in one case, ADB played an important role in the renegotiation of tariffs, which strengthened the financial viability of the project.

C. Overall Performance Rating

1. ADB Assistance for PPP through the Public Sector Window

69. The overall rating for ADB's public sector assistance for PPP based on composite institutional and project ratings is "successful" (Table 10 and Appendix 1, Table A1.7), albeit on the low side of the successful range. In terms of areas of assistance, ADB support for developing policy and regulatory PPP frameworks was rated "successful," whereas assistance for developing PPP projects has been only "partly successful" so far. In terms of sector, assistance for PPPs in the power and roads sectors was "successful," assistance for PPPs cross-sector and for railways was "borderline successful," and assistance for PPPs in water and ports was "partly successful" (Table A1.6). In terms of project performance, 58% of completed relevant loan projects or project components evaluated by IED, and 50% of the evaluated TA operations were rated "successful." The composite project rating of "successful" considered that many ongoing projects, for which no overall project rating could be assigned yet, have comparatively higher relevance and likely effectiveness ratings.

Table 10: Performance Rating of ADB's PPP Assistance through the Public Sector Window

Rating Category	Rating
Project Rating	**Successful**
Relevance	Relevant
Effectiveness	Effective
Sustainability	Less likely
Institutional Rating	**Partly successful**
Strategic Positioning	Substantial
Impact/Additionality	Modest
ADB Performance	Partly satisfactory
OVERALL PERFORMANCE RATING	**SUCCESSFUL**

Source: Independent Evaluation Department.

2. PSOD Support for PPP Transactions

70. Except for the Batangas and Himal power projects, all other evaluated PSOD PPP transactions have been rated "successful" (Supplementary Appendix C, Tables AC.2 and AC.7). Only a few PPP projects (including the Bangkok Expressway Project, the AES Kelanitissa

Power Project, and the BLCP Power Project) have been physically completed, but have not yet been subject to self- or IED assessments. The overall rating of the PSOD's PPP operations, as justified by the underlying ratings of strategic positioning, development impact, investment profitability, work quality, and additionality, is "successful" (Table 11).

Table 11: Performance Rating for PSOD Support for PPP

Indicator/Rating	Unsatisfactory	Partly Satisfactory	Satisfactory	Excellent
Strategic Positioning		**X**		
Development Outcomes and Impacts			**X**	
Private Sector Development			X	
Business Success			X	
Economic Sustainability			X	
Environment, Social, Health, and Safety Performance			X	
ADB Investment Profitability			**X**	
ADB Additionality			**X**	
ADB Work Quality			**X**	
	Unsuccessful	**Partly successful**	**Successful**	**Highly successful**
Overall Rating			**X**	

ADB = Asian Development Bank, PPP = private-public partnership, PSOD = Private Sector Operations Department.
Source: Independent Evaluation Department.

IV. LESSONS, ISSUES, AND RECOMMENDATIONS

A. Findings and Lessons

71. **PPPs Can potentially Capture Significant Productivity and Efficiency Gains, and Access Private Sector Capital available in Local and International Markets.** However, PPPs are not a universal solution as experience with first generation PPPs shows. PPP procurement needs to be transparent and competitive, and projects properly identified and well-designed so that risks are efficiently allocated to maximize opportunities to achieve value for money (VFM). Lately, there has been renewed interest in PSP in infrastructure in Asia including the use of new PPP modalities. Several DMCs have embarked on comprehensive measures to support greater private sector involvement in infrastructure investment and services, and there appears to be scope for expanding PPPs and related support in many of these countries. India's success in mobilizing considerable private sector resources for infrastructure, highlights the potential benefits of a comprehensive approach to PPPs, which involves the implementation of sector reforms, the systematic incorporation of PPP in sector development plans, PPP-related capacity development support for line ministries and state governments, support for project development by line ministries and state governments, and Government financing and financial support schemes. Indonesia and Pakistan, with comparable levels of support from ADB, are pursuing similar approaches with varying degrees of success so far, which appears to underscore the importance of overall investment conditions for PPPs.

72. **Some Infrastructure Sectors Are more Conducive to PSP and PPP than Others**. The power sector has received significantly more private investment than the transport or water

sectors. This is due to a range of reasons including better potential for cost-recovery,[26] higher political commitment due to the sector's importance for economic growth, lowers level of stakeholder resistance to PSP, greater institutional capacity, more progress with sector unbundling and utility restructuring, the centralized nature of decision-making and funding, and the availability of established PPP procurement modalities. Nevertheless, this does not mean that PPP in other sectors is without prospects. With appropriate modalities, support for capacity development, and political commitment to sector reforms, PPP is feasible in other sectors as well. It is noteworthy that while ADB's assistance was most successful for power sector PPPs, its assistance for roads was also successful, mainly due to the use of innovative PPP modalities that involved governments' assumption of the demand and a portion of the commercial risks. By comparison, ADB support for port PPPs was not successful on the average despite the sector's good scope for PPP. Assistance for cross-sector PPP frameworks can also help address some of the policy and capacity constraints affecting particular sectors.

73. **PPP Support has not Substantially Increased PPP Transactions in Most DMCs**. This is due to a number of factors. First, private sector interest in PPPs is dependent on prospects for economic growth, political stability, the quality of the legal environment, the overall investment climate, the political economy, general business and procurement practices, the presence of local infrastructure developers, and the development of local capital markets, areas that have not been sufficiently addressed and continue to constrain investment in many DMCs. Second, institutional capacity for developing and implementing PPPs is still low in most DMCs. PPPs put substantial demands on governments with regards to project identification and development, contract negotiation, the establishment of regulatory capacity for PPP supervision and contract monitoring, benchmarking, and management of social impact. Third, the development of PPPs is a long-term process requiring sustained assistance for extended periods. The reform agenda for PPPs is complex and the process of reforms typically drawn out. Isolated interventions are less likely to have a discernible impact. Particularly in larger DMCs with significant PPP potential, extensive support for establishing adequate legal, regulatory, and institutional frameworks is required. Fourth, assistance for the establishment of PPP frameworks alone is not sufficient, and needs to be accompanied by support for the development of "pathfinder projects" that are structured in line with best practices. Resources allocated for this purpose were often inadequate and potential pilots not well chosen. However, ADB experience also shows that successful pilots do not guarantee equally successful repeat transactions, particularly in countries with low capacity.[27] Fifth, private infrastructure projects had to compete with more lucrative investments for scarce domestic investor funds. Sixth, the Asian financial crisis, while not directly affecting the majority of ADB-supported transactions, highlighted risk allocation and governance issues associated with many first generation PPPs, which at least temporarily reduced DMC interest in PPPs. Improving public perceptions of PSP will require greater transparency, improved transaction design and oversight, and better mitigation of any social impact. Project cancellations, low returns, and global industry changes also affected interest of international investors and operators in emerging markets infrastructure. Nevertheless, some international companies have, since the crisis, returned to Asia, and there has been an increasing number of domestic infrastructure companies in India and the PRC, which indicate scope for further expansion. Indian and PRC companies have also started to invest in infrastructure projects in other DMCs.

[26] For example, while residential electricity tariffs in most DMCs cover for at least some operations and maintenance costs, residential water tariffs in most DMCs, particularly in South Asia, do not allow for any cost recovery, which does not permit the use of PPP modalities that involve assumption of demand risk by the private party.

[27] For example, in Bangladesh and Lao PDR, where ADB had successfully supported best practice PPPs in the power sector, subsequent power PPP projects that did not have ADB participation, experienced governance and safeguards problems.

74. **The Potential for PPP Projects at Local Government Levels Has to Be Carefully Assessed.** Decentralization and devolution in a number of DMCs have increased political interest in PPPs at local government levels. Water projects in particular tend to be implemented with local government involvement. More than 245, mostly non-ADB funded, PPPs involve local water utilities in DMCs, although less than 10 percent of these were implemented outside the PRC. There is comparatively little evidence of local-level PPPs in the other studied infrastructure sectors, in which local governments tend to play a less pronounced role. Despite a large number of road PPP projects at the state/provincial levels in India and the PRC, investment in transport projects at sub state/provincial and municipal government levels has mainly been limited to the PRC, which accounts for 10 out of 15 of such projects in DMCs. There are questions regarding the feasibility of many local government PPP projects, given their small scale, limited bankability, and associated political risks. Experience in the water sector indicates some developer interest—even by international water companies—to participate in smaller-scale local PPPs. However, effective demand will have to be carefully assessed up-front. Supply-driven support schemes including project development or financing facilities are unlikely to be of help if there is no effective demand. Earlier ADB assistance efforts in Indonesia and the Philippines involving support for preparing PPP transactions were unsuccessful mainly due to lack of commercial feasibility of identified project opportunities, limited buy-in by local authorities, and regulatory constraints.

75. **Sustained Political Will Is the Ultimate Determinant of PPP Success.** The Indian experience, among other things, shows the importance of high-level political commitment and support for obtaining buy-in for PPPs from stakeholders at various levels. Without the support of key stakeholders, PPP arrangements either did not materialize or were unlikely to last. Opposition to change and fear of consequences (job losses, higher tariffs, loss of political control) and resistance by nongovernment organizations opposed to private sector entry have thwarted many attempts to introduce PPP, particularly in the water sector. The development of PPPs was derailed in several DMCs, e.g., Indonesia, Nepal, and Sri Lanka, due to changes in (local) government commitment. The challenge in introducing PPPs is to make political leaders at all levels understand that PPP, if structured properly, could indeed be the most effective and fastest way of improving utility performance, and the quality and reliability of services provided. Support for public comparator analyses and the introduction of VFM concepts/methodologies[28] can play an important role in establishing the case for more PSP. ADB should consider initiating support for a sustained program of advocacy and outreach to DMCs to clarify the role of PPPs and their potential benefits. The target audience of these outreach efforts should be decision makers (politicians, nongovernment organizations, the media, key government sector agencies) and not, as is often the case, the "converted." There has been comparatively little assistance provided for this purpose so far, also because many bureaucracies are not used to explaining and justifying their plans and decisions to the public and have not requested support in this area.

76. **PPP is not a Panacea nor a Substitute for Reform.** Too often, the private sector is seen as a solution to long-standing sector efficiency problems. That is true only if contractual arrangements and their enforcement provide adequate incentives for performance, and if the private partner is given the tools and means needed to achieve the contract targets. Private operators cannot succeed if they are subjected to the same constraints that caused the public utility to fail. The ability to make decisions free from undue political interference and micromanagement is crucial. Tariff issues are a particular concern, and cost-covering tariffs are

[28] See Appendix 3, para.18, for a description of the methodology.

a condition for many PPPs that do not rely on off-take contracts. The use of social tariffs for the poor needs to be adequately considered.

77. **The Success or Failure of a PPP Arrangement Depends on the Quality of Documentation, and Processes and Risk-Sharing Arrangements**. Poorly constructed PPPs with uneven risk allocations are more likely to fail, as evidenced by the experience with many "first generation" BOT projects. Successful and sustainable PPP arrangements require the careful selection of options, coupled with a clear up-front understanding of and commitment of the public and private partners to the obligations each is to assume. Most successful PPPs were based on: (i) full understanding of the options available; (ii) well-defined objectives and realistic expectations shared by key stakeholders and partners—utility management, politicians, customers, civil society; (iii) clear contract scope and conditions with properly defined and allocated risk; (iv) transparent and competitive selection of the financier/contractor based on good bidding documents; (v) appropriate and unambiguous legal documents with effective arbitration arrangements; (vi) competent contract regulation and oversight by the public partner; and (vii) common goals and trust between the private and public partners. PPPs have to be mutually beneficial to both public and private sector partners to succeed in the long run. Market feedback should be sought to understand the concerns of project developers and financiers.

78. **While PSOD Projects Have Performed to a Satisfactory Level, and the Financial Returns and Risks Are Reasonable, the Full Potential of PPP Instruments Has Not Tapped.** PSOD has mainly supported BOT-type projects in the power sector, which primarily facilitated the mobilization of private capital for infrastructure investments, although they also helped improve sector efficiencies. Expansion into other sectors will likely require its participation in projects utilizing other PPP modalities with greater government involvement in project development, which can be supported by RDs.

B. Issues and Recommendations

79. As the rating indicates, there is scope for improving ADB's future PPP-related strategies and assistance programs. A number of corporate issues are highlighted here, and recommendations are made to address them.

1. General Issues and Recommendations

a. Improve Strategic Positioning of ADB Assistance

80. **Consider Key Impediments to PSP in Infrastructure.** Impediments to PSP in infrastructure have not always been systematically identified or effectively addressed. Especially in DMCs with significant private infrastructure financing needs, country partnership and sector strategies and assistance programs have to adequately analyze and address binding constraints in the enabling environment for PPP including issues related to the overall investment climate. Support might be required for public sector management, procurement, and judicial reforms involving improved incentives and governance mechanisms for regulatory and judicial bodies, and for public sector utilities. As pointed out, PPPs usually requires varying degrees of preceding sector reforms. By the same token, successful PPP transactions can spur acceptance of reforms, particularly if they involve significant service improvements. Any support for policy reform programs, therefore, needs to systematically consider and incorporate PPP/PSP aspects.

81. **Strengthen Country Programming Arrangements by Defining Sector Road Maps That Reflect Both Public and Private Sector Assistance.** Given the increasing emphasis on PPPs in Strategy 2020, it is essential for CPSs to identify the scope for, and respective roles of the public and private sector in meeting infrastructure investment and service provision needs, and to plan ADB support accordingly. Sector roadmaps have to analyze the conditions for, as well as policy, regulatory, and institutional constraints to PSP; determine what subsectors and projects would benefit from PSP; and identify appropriate assistance modalities including support for PPPs. RDs and PSOD can then use this information as a basis for preparing a consolidated business plan defining proposed RD and PSOD interventions, their expected outcomes, and operational parameters to support these initiatives. Public sector operations should also consider interventions that facilitate or are complementary to PPP transactions, such as environmental or social mitigation measures, investments in related network infrastructure, or support for related sector policy and regulatory reforms and capacity development.

82. **Systematically Identify the Potential for PPP in ADB's Support for Public Sector Investments**. The identification of PPP potential and opportunities has to be an integral part of sector planning. Potential for PSP needs to be assessed early on in the project development cycle. ADB attempts to add PSP components/covenants to infrastructure projects that had been conceived by line ministries as public sector investments were usually not successful. The projects with the highest potential for PPP will be those that are based on strong economic and social need, have good financial viability with no or minor fiscal support needed, have manageable risks, and no major adverse social or environmental impacts. This test should be applied to any ADB-supported public sector investment project: can the project or some of its components also be done with PSP? Clear criteria should be established for this purpose to help ensure that rational decisions are made about whether or not to develop a project as a PPP. The use of PPP modalities should be considered if they present the best option to enhance a facility's/utility's capacity to deliver services more efficiently to more people. If a utility or public sector entity is performing at unacceptable levels and cannot easily be reformed, the use of management/service contracts or operating concessions should be considered for any new ADB lending. CPS sector roadmaps should identify potential and government plans for PSP in each subsector. Project lists presented in CPS documents should indicate whether there will be any PSP in the financing, construction, and maintenance of proposed infrastructure investments, and it would be useful if project concept and report and recommendation of the President (RRP) documents provided a clear rationale for pursuing or not pursuing private sector involvement.

83. **Increase Partnerships with Public Entities That Have Potential for PPP Operations.** ADB's public sector operations after the Poverty Reduction Strategy gradually moved away from investment support for national highways, water utilities in large urban areas, and power generation projects toward funding the development of state and rural roads often in less developed areas of the country, water supply systems in secondary towns/rural areas, and rural electrification projects. While these activities are crucial for meeting the Millennium Development Goals (MDGs), they usually do not easily lend themselves to PSP. Also, relationships with key utilities/public services providers that are good candidates for PPPs have been difficult to maintain/build under these circumstances. It is noteworthy that many PPP transactions that materialized with ADB support, e.g., Theun-Hinboun, Nam Theun II, Meghnaghat, Karachi Electric Supply Corporation, Pathum Thani, and Phu My projects, had their origins in a long-standing relationship between ADB and the relevant government utility. The surest way to prepare PPP projects is to work directly with PPP units, utilities, and relevant government entities, and assist them with advice and finance. Ongoing assistance for larger

water utilities in Viet Nam is a promising model for future assistance. The more the larger utilities/projects are able to tap private sector financing and expertise, the more public resources are freed up for deployment in less developed areas. To implement Strategy 2020, ADB must (i) proactively seek relationships with key utilities to prepare them for private sector involvement, and (ii) allocate sufficient TA funds for this purpose.

b. Improve the Effectiveness of PPP Assistance

84. **Improve the Effectiveness of Support for Project Development.** Support for PPP projects has to start at the sector planning stage. Attempts to convert projects that were conceptualized as public sector investments into PPPs at a later stage were usually less successful. Substantial assistance is required to help the public sector develop PPP projects.

85. An important impediment to the success of transactions support has been the selection of projects that had limited bankability/commercial viability. Any project proposal should have demonstrated feasibility before being considered for further assistance. Assistance mechanisms need to be developed for first-level screening, in particular the preparation of (pre)feasibility studies and sufficient funds allocated for this purpose.

86. Experience with several projects indicates that recipient government agencies did not always fully understand the nature, options, process, and contractual obligations associated with PPPs. Transactions assistance needs to focus on entities that are fully committed to the PPP modality based on a sound understanding of all its implications. Adequate familiarization needs to take place before shortlists of potential PPP candidates are compiled. A number of projects fell through because executing agencies had other funding options or felt that traditional procurement modalities were less cumbersome and time-consuming. Key stakeholders need to be consulted and involved early on in the process and resources need to be allocated for such consultation.

87. Several PPP projects have suffered from not having advisors for the crucial last stages of pre-bid meetings, bid evaluation, and negotiations with the first-ranked bidder. It is important that terms of references cover the entire transaction process, from feasibility review to assistance in bid evaluation and negotiations. Close support by an international finance institution (IFI) or bilateral institution has been instrumental in providing the “comfort” required by public partners and potential private sector investors/operators to go ahead with PPP. It must be recognized that the entire process can take several years and consultant inputs need to be structured and resourced accordingly, with sufficient flexibility to provide services when needed rather than by a predetermined schedule in a consultant contract. Several executing agencies have raised this concern. Flexible retainer arrangements for transaction advisors should be utilized as much as feasible. Experience with output-based contractual arrangements when payment is made upon reaching agreed-upon milestones has been positive and is credited with contributing to project success. In the marketplace, at least part of the payment of transaction advisors is success-based, e.g., an extra fee is paid upon financial close of a project. ADB consultant contracts do not explicitly include this feature. Recruiting top-notch financial and legal transaction advisors has been difficult, given ADB remuneration rates. Recruitment conditions and incentives of other IFIs for transactions advisors should be considered. Also, supplementary TA was needed because ADB did not always budget sufficient funds for transaction advisory services. Implementing Strategy 2020 would likely entail a greater allocation of TA funds for PPP activities.

88. ADB's TA has been largely tied to the preparation of sovereign guaranteed projects. To facilitate better synergies between project development and PSOD transactions, PSOD now has TA funds—albeit rather limited— at its disposal. That will facilitate a stronger role in project development and institutional risk mitigation. In comparison, other IFIs such as IFC and Inter-American Development Bank (IADB) have established special-purpose independent advisory units that have access to a pool of TA funds, but also draw on staff resources for advisory work. These advisory units usually charge for the direct services that they provide on the grounds that it will increase the likelihood that the government will take ownership of the advice. The credibility of the IFI advice is enhanced in the market, as it is not tied to the provision of any particular form of finance modality or source of finance. The costs to the IFI of any TA are offset by agreeing with the government that a proportion of the project preparation costs will be waived in the event that a project uses IFI funding. This form of advisory function has not replaced traditional advisory assistance mechanisms, and it acts as a complement to identify and develop potential PPP opportunities, particularly for large-scale infrastructure projects in the energy and transport sectors. Currently, ADB cannot provide similar services, other than through TA consultants, which might not provide the same level of comfort to DMC governments in terms of accessibility and consistency of advice. The introduction of fee-based advisory services would appear to be desirable, if it is determined that the potential deal flow is large enough to warrant the establishment of such a unit, which would need to be staffed with adequately qualified and experienced staff.

89. ADB must give more attention to addressing institutional constraints in countries with substantial potential for PPPs. Only a small portion of TA had explicit objectives for developing capacity of line ministries and central governments. Particular attention has to be paid to capacity "enablers," including the skills and resources of the PPP units and their role in coordinating relevant government entities. Recruiting suitably trained and experienced staff is a challenge in many countries, either because the appropriate skills do not exist, or because the private sector is prepared to pay multiples of government salaries for similar qualifications. Project development facilities can assist PPP units in financing transaction advisors to help develop and structure a larger number PPP projects, but need to be integrated with measures that remove constraints to the successful development of bankable projects. Support for developing local project companies must also be considered, as not every contract can and should be performed by established international companies. In many countries, the emergence of capable local private providers will be a prerequisite of expanding PPP.

90. PPPs are attractive to governments, as they permit a reduction, and often deferral, of government expenditures for infrastructure investments. However, certain PPP modalities effectively create (off-budget) contingent liabilities. As experience with the first round of PPPs implies, fiscal implications of government commitments under PPPs have to be carefully assessed and monitored. ADB should consider providing assistance for determining and managing related fiscal impact including the development of institutional capacity for accounting, reporting, and analyzing debt sustainability.

91. There is also need to re-assess current ADB procurement procedures to determine how approaches can be made more responsive to the special considerations necessary for PPP transactions. PPP-related procurement is distinct from that of typical public sector projects because the project sponsor may be (or be affiliated with) the project contractor and/or supplier, and even in particular cases might become a part or full project output off-taker. Other usual differences include the use of performance or output-based contracts. Some of the due diligence issues associated with PPP procurement modalities identified by the Central

Operations Services Office (COSO)[29] include assessment of the analytical basis for selecting PPP modalities, the propriety of bid origination (solicited or unsolicited) including, among others, for the "procurement" of the PPP concessionaire, potential for conflict of interest (e.g., if transactions advisors and/or design consultants are also potential investors, financiers, concessionaires/operators or contractors/suppliers), or appropriate/inappropriate circumstances for the use of competitive negotiations or sole sourcing. A number of transactions were sole-sourced. In other cases, only one responsive bid was received.

92. **Expand Economic and Financial Analysis for PPP Support.** ADB's project selection criteria are primarily focused on EIRR and FIRR levels, which are useful for determining allocative efficiency and financial viability when developing project pipelines in CPSs. However, these methodologies do not clearly identify the benefits of public versus PPP procurement, which is determined by performing a VFM analysis.[30] While VFM analysis is desirable, it might not always be required, particularly where benefits of PPP modalities are obvious. VFM can be complex and DMCs who wish to use this decision-making tool, should be provided with adequate support.

93. IFC and the European Union have been conducting a significant amount of research in the areas of project selection and monitoring, and have identified several innovations that ADB Management can consider. The European Union has developed project monitoring arrangements where the focus of project evaluation is oriented toward VFM analysis, with allocative efficiency being considered in broader planning frameworks that use a mix of qualitative and quantitative indicators to capture factors such as network benefits and other project externalities that are difficult to quantify and often rely upon subjective estimates when they are included in EIRR calculations. Similarly, IFC focuses its analysis on the economic impacts on direct users, rather than ultimate users, and it relies upon qualitative analysis for intangible impacts such as externalities and how they can be regulated. IFC's methodology for economic analysis differentiates between impacts on different project stakeholders and it provides a means of estimating its additionality, which can be aggregated across projects, financial instruments, sectors, and countries.

94. Underpinning these types of arrangements, project monitoring frameworks can be put in place to assess project impacts on users of the outputs (VFM), neighbors (externalities), sponsors (return on equity), lenders (interest rate), and the government (level of fiscal support required and affordability). This analytical framework helps ensure that project impacts are balanced, and address stakeholder constraints that might otherwise negatively impact on project performance. The data used in this type of analytical framework is enhanced as the outputs are based on creditable verifiable inputs, they are understandable to the affected parties, and they directly address stakeholder concerns such as poverty reduction (see Supplementary Appendix E).

95. **Improve the Effectiveness of Support for Infrastructure Financing**. Previous financial intermediation-type loans for infrastructure projects were only partly effective. ADB

[29] COSO Note on ADB Procurement Issues for Multilateral Development Bank Heads of Procurement PPP Working Group dated 30 January 2009.

[30] The VFM methodology seeks to determine the cost to the government of in-house provision versus procuring the outputs from the private sector, using a "make or buy" analytical framework. The VFM framework requires identifying the cash flows and associated risks arising for each option, and estimating the net present value of these costs. As part of the analysis, a public sector comparator is constructed to reflect the risk-adjusted cost of the government providing the output.

should identify and financially support innovative financing mechanisms and credit enhancements for infrastructure projects in both, its public and private sector operations. The objective should be to catalyze funds from other sources through products and mechanisms that primarily provide risk mitigation. There may also be need for assistance that helps develop DMC capacity for infrastructure financing. It is important to recognize that infrastructure financing has not been constrained by a lack of funds per se, but by the failure of financial systems to translate savings into long-term funds for investment, and by structural problems that constrained the development of bankable private infrastructure projects. This would not necessarily rule out investments in specialized institutions that can act as financial advisors for PPP transactions or the provision of long-term debt financing to viable financial institutions in cases where ADB assistance can indeed help leverage additional funds, improve lending practices of such institutions, or address long-term funding needs that could otherwise not be met. However, the development of corporate and municipal debt markets and related support will likely be more effective and sustainable in mobilizing long-term resources than the provision of direct financial assistance. A recent IED study[31] points out the issues affecting bond market development and associated assistance needs.

c. Improve ADB Performance and Value Addition

96. **Improve Staff Capacity.** Unlike the World Bank Group, ADB is seen as relying greatly on TA consultants to develop much of its policy and advisory inputs on PPP issues. This has not only affected ADB's ability to develop sustainable capacity on policy issues (since a lot of the experience gained in the course of ADB-financed operations leaves with the consultant), but also reduced its ability to quickly respond to government requests for policy or transactions advice whenever it is needed, and to engage in long-term dialogue. Proactive dialogue requires (i) an excellent institutional knowledge base on key sector policy and legal issues, as well as transactions-related experience; (ii) the capacity to identify and disseminate successful PPP experience from within and outside the region; (iii) access to highly qualified expertise; and (iv) staff with the ability to conduct policy dialogue at the highest levels of government and advise on transactions.

97. Given the demand for project finance or PPP expertise including in DMCs, it has sometimes been difficult to employ staff with adequate expertise in this area. PSOD staff have the necessary project finance, corporate and investment banking skills to perform transaction processing and administration responsibilities, but experience is largely limited to the power sector and BOT-type transactions. The Office of the General Counsel (OGC) has provided substantial support in transacting PPP infrastructure projects and is a critical determinant of quality of outcome. Staff in OGC's private sector legal group have solid, detailed knowledge of both, PPP (rail, road, water, power, energy efficiency) and private sector transactions. Outside PSOD and OGC, only eight staff members with at least some PPP experience, mainly in the water sector, were recruited into infrastructure divisions or Regional and Sustainable Development (RSDD) over the last 4 years. Fewer than 10 staff currently working on the public sector side of ADB's infrastructure operations have more than 5 years of PPP-related experience gained outside ADB. A number of staff have relevant expertise in the water sector, but actual PPP experience is largely absent in the transport and energy sectors. Many PPP-related loans and TA projects were processed or implemented by RD staff, who did not have substantial relevant experience or expertise. Given Strategy 2020 objectives with regard to 50% of all transactions coming from private sector-related operations, and increasing interest from DMCs in the subject matter, specialized staff skills are becoming increasingly important. There

[31] ADB. 2008. *Special Evaluation Study: ADB Assistance for Domestic Capital Market Development*. Manila.

have been formidable training efforts during the last couple of years and a PPP handbook was developed to provide guidance to staff on the design of PPP projects. However, short-term training does not instill the ability to advise on PPP transactions. ADB needs to invest in PPP expertise by recruiting additional specialists, particularly in the transport area. Outside capacity, particularly longer-term staff consultants, needs to be tapped to supplement in-house staff resources.

98. Although the situation in terms of total PSOD staff numbers who work on infrastructure transactions has improved significantly over the last 2 years,[32] the transactions approved have increased even faster (Table 12). As of 30 June 2009, the PSIF had several vacant authorized professional staff positions and three vacant authorized national positions, which it has had problems filling, which is in part due to available position/remuneration levels. The level of resources allocated to PSIF should be reviewed. While RDs have had an adequate number of staff to deal with the existing PPP project portfolio, staffing levels need to be increased to allow for more hands-on involvement in a larger number of projects.

Table 12: PSIF Staff Workload – Annual Transactions Processed

Indicator	2002	2007
Approved transactions ($ million) per professional staff	20.6	92.5
Approved number of transactions per professional staff	0.3	0.5
Approved transactions ($ million) per administrative staff	61.7	308.2
Approved number of transactions per administrative staff	1.0	1.7

PSIF = Private Sector Infrastructure Finance Division.
Source: Asian Development Bank records.

99. PSOD currently has one professional staff to each of the resident missions (RMs) in Indonesia, Kazakhstan, and PRC. In addition, PPP specialists of RDs were placed in the India and Indonesia resident missions. RMs can play an important role in infrastructure-related business development, market intelligence, project monitoring, and managing client relationships. For example, ongoing ADB assistance in India and Indonesia is supported by resident mission staff involvement in awareness building for key government entities, direct handholding in the conceptualization of possible PPP projects with identified project sponsors, and the management of ADB-funded transaction advisors. Depending on the experience gained, consideration could be given to expanding RMs' role in PPP support.

100. **Improve Utilization of PPP Transactions Advisory Resources within ADB.** Currently OGC, PSOD, RDs, and RSDD are involved in PPP transactions. PPP project development and transactions expertise is highly specialized. Existing expertise in this area is very limited and dispersed throughout ADB. Apart from recruiting additional staff with relevant background and experience, centralization of related staff resources would appear desirable, as doing so could leverage limited resources, improve the consistency and quality of such services, and simplify relationships with outside clients. Any decision on delivery channels for PPP transactions support services will need to take into consideration the need for critical mass, level of required and available expertise, coordination with other sector operations, potential for conflict of interest, and proximity to public and private partners. PSOD would appear to be a logical home for transactions expertise related to larger and complex PPP projects with likely foreign

[32] As of 30 June 2009, the two PSIF divisions comprised 16 professional staff and six nonprofessional staff that administer transactions, compared to 2002, when PSIF had nine professional staff and three nonprofessional staff administering transactions.

investment that require substantial financial and legal advisory services. RDs should continue to manage ADB advisory services for smaller-scale infrastructure PPP projects (under PDFs, capacity development assistance for PPP units, or standalone support), and PPPs that require substantial policy dialogue and integration with public sector investments.

101. **Further Improve Internal Coordination for PPP Operations.** There has been little direct connection between public sector support for PPP and PSOD transactions. Only TA for the Chengdu Water, Nam Theun II, and Meghnaghat BOT projects, as well as privatization support for the Karachi Electric Supply Corporation resulted in PSOD transactions. PSOD implemented 35 other transactions without any direct inputs from ADB's public sector assistance or TA support in general. Lately, with PSOD access to TA funds, PSOD staff has been undertaking preparatory and advisory work in conjunction with potential PSOD transactions. Although this is overall a positive development, it also reduces the need for PSOD to interact with RDs.

102. ADB's strategic positioning and effectiveness could have been strengthened by dovetailing the operations of RDs and PSOD. Although intentions to this end had been expressed, substantive action has not been taken outside the power sector. For example, in the water sector PSOD has primarily been interested in "deals" and the flow of private investment resources, and has favored BOT/concession-type arrangements, whereas RDs have tended to take a broader, utility-based view and may favor management contracts or leases. Communication between the two groups has improved, particularly in the power sector, where there has been good collaboration on several project initiatives. However, there is scope for better cooperation and knowledge sharing. To strengthen coordination between PSOD and RDs, the private sector development and nonsovereign operations task force (footnote 29) recommended such measures as integrating PSOD into the CPS process and strategic research efforts, systematic feedback from PSOD on relevant public sector operations and vice versa. Mutual participation in missions, wherever beneficial, will help. Cooperation can further be improved by providing appropriate incentives, which ensure that PSOD staff assist in creating an enabling environment for PPP/sector reforms, and RD staff seek PSOD inputs on transactions.

103. Within RDs, there is also need for coordinating PPP-related activities undertaken by the various infrastructure divisions, the financial sector, public management and trade divisions, and the RMs to ensure consistency of policy approach and utilization of appropriate expertise.

104. **Provide Appropriate Incentives for Staff.** At present, few professional staff and managers in RDs have the knowledge to pursue PPPs vigorously as an integral part of sector operations. Also, although some staff are willing to pursue PPP, PPP-related assistance can be difficult to justify in a culture that favors lower-risk traditional public sector projects, which are easier to identify and prepare. PPP-related work requires tenacity, substantial efforts and resources, specialized skills, and ability to act as a go-between for private parties and government. Dealing officers reported spending an extraordinary amount of effort and time working on one PPP transaction, which was not always adequately recognized. Also, unlike public sector investment projects, PPP-related advisory and preparatory work does not always result in actual lending transactions, as deals fall through for reasons that are often beyond the control of ADB, or public sector financial support is not required at the investment stage. Staff and their managers need to be adequately incentivized to undertake this challenging work.

105. **Facilitate Knowledge Sharing on PPP within ADB.** Although RSDD has done a good job of sharing information about PPP across ADB departments, and various departments have

been organizing consultant presentations on PPP issues, the establishment of a community of practice for discussing and learning about PPP issues, sharing best practices, and providing input into related corporate strategies should also be considered. While OGC has started a database on PPP-related standard contracting/concession agreements for easy reference in subsequent transactions, there is no central repository for PPP legislation/regulations/guidelines produced under various ADB TA projects or best practice examples of PPP assistance. Doing so would not only enhance access to information, but reduce duplication of TA efforts.

106. **Continue to Facilitate Exchange of Regional PPP Experience.** ADB is just one of many sources of available knowledge, particularly for the larger and more developed DMCs. ADB can offer potential value addition through objective analysis and advice on policy issues, research, discussion, and dissemination of regional experience. To maximize the effectiveness of limited resources, the approach to knowledge management must be more systematic. The majority of studies have been done under various TA projects, but resulting materials have not been systematically reviewed and utilized outside the particular TA. Non-project-related research and analysis on pertinent PPP issues has been limited to a few studies and best practice guidelines (Appendix 2, Table A2.3), some of which had substantial depth. Most publications covered general topics related to PSP in infrastructure, rather than specific PPP issues. There is increasing interest from DMCs to learn about the actual PPP experience of other Asian countries. There would appear to be a larger role for ADB to consolidate, analyze, and disseminate this information. ADB has initiated related activities. For example, an RSDD-managed TA,[33] among other things, disseminates the Korean PPP approach and facilitates the exchange of regional experience among DMCs through seminars. Given its limited resources for in-house research and analysis, ADB's approach to draw on external experts and leverage the capacity of global and regional research institutions and think tanks is appropriate. Another channel is ADB-organized expert visits, which could be expanded. Such a visit helped share the Indian experience with viability gap funding schemes and private specialized infrastructure financial institutions with counterparts in Indonesia.

107. **Improve PSOD Operations.** To help implement Strategy 2020 and CPSs, PSOD should consider preparing an annual PSIF business plan that reflects strategic priorities, development indicators, funding requirements, and expected project processing requirements. This document could then be used for assessing annual staff and budget requirements. PSOD could report on trends of the portfolio in terms of actual versus forecast targets by country, sector, type of investment, and financial instrument.

108. PSOD is currently changing its credit appraisal and reporting procedures for non-sovereign transactions to address weaknesses identified by the ADB task force reviewing ADB's private sector development and nonsovereign operations. There is scope for further strengthening PSOD's project appraisal, project reporting, and project administration (which has not been separated from origination). In line with other IFIs, there is a need to separate project origination and administration functions to enhance the transparency, accountability, and efficiency of PSIF operations and help avoid risks of conflicts of interest that can arise when these functions are combined within a single division.

[33] In 2008, ADB and the Government of the Republic of Korea, which has been implementing a model PPP program framework with a multisectoral approach for over a decade, established a Knowledge Partnership Fund to support a regional project on "Knowledge Sharing on Infrastructure PPPs in Asia." Also cofinanced by the Korea Development Institute (KDI), the ADB-Korea project aims to strengthen the capacity of ADB's DMCs by sharing knowledge and experience of successful PPP country frameworks and project case studies.

109. The Risk Management Unit needs to be adequately resourced to undertake independent credit reviews. Both the Risk Management Unit and RSDD (when it is monitoring safeguard-related issues) should be required to attach to the PSOD annual report a review of critical issues impacting on each project.

110. **Review Funding Mechanisms for PPPs through ADB's Public Sector Window.** A number of ADB-funded public sector investment projects supported PPPs by financing complementary investments or by using alternative PSP procurement modalities involving performance-based service/maintenance contracts. In only a couple of public sector projects have ADB funds been used to finance government financial contributions to PPPs. In these cases, ADB helped finance the government equity stake in project companies. There is scope for expanding ADB's financial support for PPPs from its public sector window. ADB could finance public infrastructure, whose management is then transferred to the private sector under management/ lease/ or concession contracts. Another interesting mechanism that was pursued in the case of a gas project in Indonesia, involved ADB funding of a public investment project, which was subsequently sold in part to a strategic investor. In addition, ADB can consider greater use of "blended" financial structures by deploying both sovereign and nonsovereign instruments in the context of PPP financing.[34] Also, revised lending policies now allow the use of ADB loan proceeds to acquiring land or rights-of-way, which is a common government contribution under PPP arrangements. The need for ADB to also finance or guarantee other types of Government PPP support including viability gap funding or minimum revenue guarantees, which are likely to be important for road and water investments, should be reviewed.

111. **Prepare a Strategy for Supporting PPP in Infrastructure.** ADB's Strategy 2020 implies a significant expansion of ADB support for private infrastructure development. At the institutional level, ADB does not have any strategy that can effectively translate ADB-wide objectives into sector priorities and operational support at the country level. Considering ADB's lack of strategic vision, coherent and comprehensive approach, internal coordination, and adequate resources for supporting PSP in infrastructure development in Asia, it would make sense to prepare a strategy to help (i) clarify ADB's vision for its support for private infrastructure development in Asia and the respective roles of PSOD and RDs; (ii) provide a consistent, comprehensive analytical and operational framework for ADB support that links support for private infrastructure/PPP to ADB's broader goals and activities in the infrastructure and other related sectors (e.g., finance, public sector management); (iii) determine the scope for and focus of ADB PPP activities in response to DMC requirements and emerging sector challenges and international market developments, including clear criteria when to use PSP including PPPs and when to proceed without; (iv) develop a results framework for PSP/PPP operations;[35] (v) effectively coordinate various entities within ADB that work on private infrastructure/PPP issues; and (vi) identify corresponding financial, TA, and staff resource requirements and deployment. Approaches for supporting cross-border PPPs will also need to be developed in line with Strategy 2020 regional cooperation/development objectives.[36]

112. The CPSs have highlighted infrastructural inadequacies and the need to address these constraints, but the information has had limited value from an operational perspective as the

[34] The Nam Theun 2 Hydropower Project in the Lao PDR is a good example of how sovereign and nonsovereign financing modalities can be blended to achieve project objectives.

[35] This should also include guidance on how PPP-related contributions of sovereign operations to private sector development will be measured for the purpose of Strategy 2020 targets.

[36] Until now, only assisted power projects in the Lao PDR and Nepal, which were selling their electricity output abroad, had cross-border features.

programs presented in the CPSs have tended to be broad statements of intent. The CPSs need to be supplemented with an internal operational planning document that can be used to monitor and guide sector operations including support for PPPs by PSOD and the RDs.[37]

2. Sector-Specific Issues and Recommendations

113. **Promote PPP Modalities That Improve Water Systems Performance**. The Chengdu BOT project indicates that selecting a PPP option must recognize the needs and conditions of the entire system—production, distribution, and service provision. Decisions should be guided by the overall objective of minimizing investment and operating costs of the entire system and need to be sensitive to local political conditions and aspirations. Attracting private capital rather than achieving gains in technical, managerial, and allocative efficiencies is often wrongly perceived as the primary purpose of PPPs. Compared with those in other regions of the world, more than half of PPP projects in Asia involve greenfield investments (see Table A3.2), usually water treatment plants on a BOT basis, compared with 35% elsewhere. The share of management and lease contracts is only 7% compared with 20% worldwide. ADB should promote performance-based management contracts and affermages/leases,[38] at least as strongly as BOT-type interventions. This requires intensive engagement with selected utilities involving preceding policy dialogue on strengthening their autonomy, financial position, performance and service orientation, as well as tariff reforms. This approach is being pursued under ongoing assistance program in a number of DMCs, notably Viet Nam, which bodes well for the success of future sector operations.

114. **Continue Support for Power Sector Reforms and PPPs.** Despite comparatively good progress made with involving the private sector in traditional power generation projects, additional efforts need to be made to mobilize private financing to meet the large volume of power sector investment required to maintain economic growth rates. There would appear to be a role for PSOD in promoting cross-border projects, renewable energy sources including hydropower, peaking units, and merchant power plants, and in supporting governments and utilities in developing the contracting structure for such projects. A number of these activities would depend on successful sector restructuring and reform. For example, ADB's policy dialogue on the privatization of NPC generation assets and the creation of a wholesale electricity market in Luzon facilitated PSOD investments in merchant power plants. ADB's policy dialogue should also encourage the franchising of distribution activities and contracting out of billing and debt collection to bring private sector entrepreneurs into the distribution function. In DMCs with more advanced sector reforms, it may be possible to promote greater PSP in power transmission.

115. **Increase Support for Policy Reforms and Modalities That Facilitate PPPs in the Roads Subsector.** Despite ADB's extensive operational involvement in the roads subsector, achievements under ADB support for developing PPPs have stayed below expectations except in India and the PRC. In the latter, ADB's value addition was probably limited. There are a number of reasons, which will need to be systematically addressed going forward, including

[37] This issue was highlighted in the SES prepared by IED on ADB's Private Sector Operations (ADB. 2007. *Private Sector Development and Operations: Harnessing Synergies with the Public Sector*. Manila).

[38] Under this PPP modality the operator (the leaseholder) is responsible for operating and maintaining the infrastructure facility and services, but generally the operator is not required to make any large investment. Under an affermage, the operator and the contracting authority share revenue from customers/users. Under a lease, the operator retains revenue collected from customers/users of the facility and makes a specified lease fee payment to the contracting authority. In the affermage/lease types of arrangements, the operator takes lease of both infrastructure and equipment from the government for an agreed period of time.

(i) the lack of comprehensive sector investment planning, which is necessary to impose discipline on the PPP selection process, provide transparency in the private sector, and minimize the occurrence of unsolicited bids; (ii) the expectation that private toll roads are profitable without government support, although this has only rarely been seen outside the dense PRC market, which is deemed a special case; and (iii) difficulties associated with introducing promised tariffs and tariff increases. The last issue could be addressed through the increased use of PPP modalities that involve annuity-based availability payments or minimum revenue guarantees by the government to the project developer—rather than user tolls—and viability gap funding schemes. It must be recognized that the scope for PPP modalities, in which the private sector takes on demand risks, is confined to primary roads with high traffic. To encourage PSP in other areas, PPPs solutions require public sector incentives. This may tip the balance of risks to the disadvantage of the public sector and would thus tend to undermine the basic rationale of PPPs. The net economic benefits of such Government support schemes will need to be clearly established through VFM analysis. Also, the use of availability payment schemes and minimum revenue guarantees, or other forms of government support, requires substantial government capacity for PPP planning and management, e.g., for determining whether contractual private sector commitments have been met. Related capacity development support needs to be considered. More use could also be made of performance-based management contracts to deal with operations and maintenance issues of roads authorities in many DMCs. Doing so, would, among other benefits, help familiarize relevant government entities with greater PSP in their operations, and provide incentives to private (mainly domestic) companies to develop their capacity in this area. ADB should promote such contracts, wherever feasible, in conjunction with its public sector road projects.

116. **Increase Support for Urban Transport PPPs.** The most pressing contemporary issues in the transport sector are to (i) find responses to the evolving energy and global warming situation, (ii) design efficient transport logistics to ensure trade competitiveness, and (iii) overcome increasing urban transport bottlenecks. The latter two areas provide scope for PPPs. In fact, the urban transport problem in the megacities of Asia can only be resolved with substantial PSP. ADB has largely been absent from these two areas. Urban transport planning is known to be highly complex and it is not clear whether ADB would be in a good position to make an effective contribution. Various attempts have been made over time and a greater involvement of ADB has frequently been advocated. Urban infrastructure is also on the agenda of several CPSs. Public and private transport in most Asian cities is beset by policy and institutional issues that pose challenges to PSP. For example, in urban mass transit, tariffs tend to be politically set at low levels, which make private sector involvement more complex. In addressing these problems a comprehensive long-term approach will have to be adopted.

EVALUATION APPROACH AND RATINGS

A. Evaluation Approach

1. To assess the effectiveness for development of the Asian Development Bank's (ADB) public sector operations, this special evaluation study (SES) evaluates the strategic positioning and impact of ADB's public-private partnership (PPP) operations as well as ADB's performance. The evaluations are combined with assessments of the relevance, effectiveness, and sustainability of ADB's project assistance. Efficiency was not rated, as implementation and resource efficiencies were difficult to determine, considering that, in many cases, the SES assessed PPP-relevant project components, rather than the entire project. The assessment framework for public sector operations is shown in Figure A1.1.

2. The Private Sector Operations Department's (PSOD) PPP projects are evaluated using the Independent Evaluation Department's (IED) *Guidelines for Preparing Performance Evaluation Reports on Nonsovereign Operations* (the guidelines), which are based on standards harmonized with those of other multilateral development banks.[1] Project-based analysis was complemented by an analysis of PSOD's strategic positioning with regard to infrastructure support. This approach is designed to answer three questions: whether ADB is

(i) doing the right things enhancing the private sector enabling environment and financing PPP projects;
(ii) doing things right in terms of the organizational structure, scale of operations, resource mix, and adequacy of systems; and
(iii) adding value.

3. The way the evaluation issues map onto the criteria and subcriteria defined in the guidelines is presented in Table A1.1.

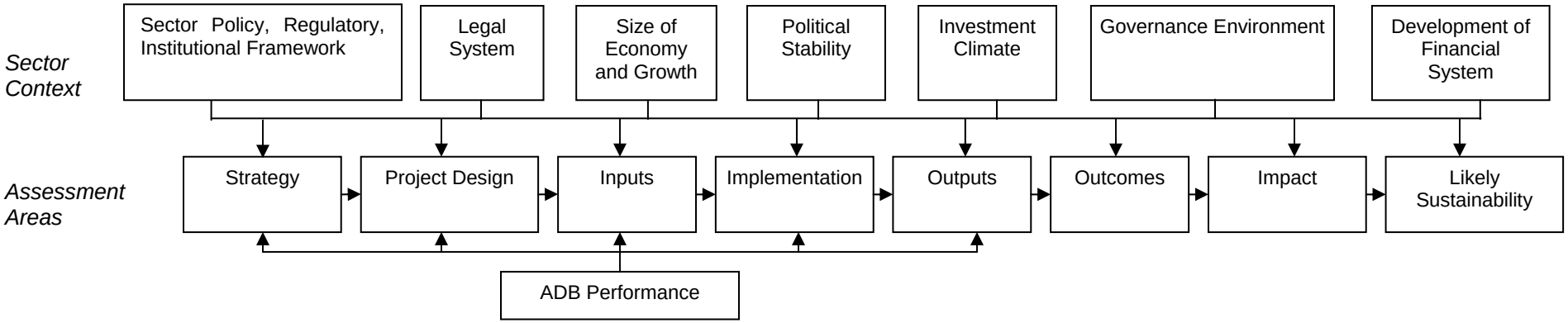
Table A1.1: Evaluation Framework for PSOD Projects

Key Questions of the Special Evaluation Study	Evaluation Criteria Based on the Guidelines	
Is ADB doing the right thing?	(i)	Strategic Positioning
Is ADB doing things right?	(ii)	Development Impacts and Outcomes: (a) Contribution to the sustainable development of the private sector (b) Business performance of PPP projects (c) Contribution to living standards and environmental sustainability
	(iii)	ADB's Investment Profitability
	(iv)	ADB's Operational Effectiveness: (a) Screening, appraisal, and structuring work at entry (b) Quality of monitoring and supervision (c) Role and contribution
Is ADB adding value?	(v)	ADB's Additionality

ADB=Asian Development Bank, PPP=public-private partnership, PSOD=Private Sector Operations Department.
Source: Independent Evaluation Department.

[1] Multilateral Development Bank Evaluation Cooperation Group. 2006. *Harmonized Good Practice Standards for Evaluation of Private Sector Investment Operations*. Washington, DC.

Figure A1.2: Assessment Framework for Public Sector Operations



Rating Criteria	**Strategic Positioning**	**Relevance**	**ADB Performance**	**Effectiveness**	**Impact**	**Sustainability**
Assessment Basis	• Strategic vision and direction at the institutional and country levels • Selectivity of ADB assistance in terms of countries and assistance areas • Nature and extent of ADB relationships with public entities that are PPP candidates • Level of support for sector/general reform and related sequencing of PPP assistance • Level and consistency of PPP support • Coordination of ADB activities with other external support	• Responsiveness to sector development needs • Stakeholder involvement and ownership • Conformity of design with best practices and standards	• Staff expertise, resource levels, and deployment • Internal coordination • Quality of consulting services • Quality of economic and sector work	• Strengthening of overall sector conditions for PPP • Strengthening of legal, policy, and regulatory framework for PPP • Improvements in institutional capacity for PPP • Success of preparatory support for individual PPP transactions	• Level of follow-on PPP transactions • Economic benefits of supported PPP transactions/ approaches • Improvement in PPP capacity • Value addition by ADB	• Sustainability of sector reforms • Long-term institutional capacity

ADB=Asian Development Bank, PPP=public–private partnership.
Source: Independent Evaluation Mission.

B. Scope and Sources of Data

4. The evaluation covered the period from the start of ADB's PPP operations in 1988 up to 31 December 2008. The study covers operations in the following infrastructure subsectors: ports, power, roads, rails, and water supply and sanitation, as well as support for the establishment of cross-sector PPP frameworks and support mechanisms. These subsectors were selected based on their relative importance in ADB's PPP support, potential for synergies between ADB's public and private sector operations, and number of completed projects. Subsectors not covered include airports, energy efficiency, gas, telecommunications, and waste management.

5. The SES is based on a review of all of ADB's public sector activities related to promoting PPPs, as well as on a review of selected PSOD operations. PSOD projects were selected according to the availability of PSOD self-assessments in the form of project completion reports (10 projects) and IED evaluations (6 projects),[2] including 3 project performance evaluation reports (PPERs) prepared as inputs for this SES.

6. The SES was carried out through a combination of desk studies at ADB Headquarters and field visits in selected developing member countries (DMCs). The evaluation team

(i) conducted desk reviews of ADB documents and working papers, and existing studies on private infrastructure; literature review; and internet search;
(ii) studied existing evaluation studies by IED and self-evaluations by regional departments (RDs) and PSOD;
(iii) undertook in-country consultations with representatives of governments, regulatory agencies, and utilities;
(iv) carried out interviews with selected ADB staff involved in PPP operations; and
(v) analyzed various PSOD presentations to ADB's Board of Directors, Management, and staff on the use of PPPs; PSOD quarterly reports on private sector operations; and PSOD annual reports on active individual projects.

C. Limitations

7. The assessment of ADB's PPP operations has raised a number of methodological issues, in particular attribution problems. Especially for some of the larger DMCs, it can be difficult to establish credible linkages between ADB's policy dialogue and technical assistance at the country level and their impact on PPP investment activity or the development of capacity. For this reason, assessment of impact considered ADB's relative contributions and value addition to the development of PPP frameworks and transactions.

8. The achievement of sector impacts not only will depend on the effectiveness of adopted ADB strategies and approaches, but is also a function of external factors, e.g., overall economic performance, development of the financial and legal system, the country's business environment, and political stability. It is conceivable that assistance is appropriate, but for a number of reasons, investments are not forthcoming.

[2] IED has not prepared PPERs in the past due to concerns about commercial sensitivity of information and the need for confidentiality.

D. Performance Ratings

9. The overall performance rating for public sector operations is calculated on the basis of aggregated sector institutional sector ratings (50% weighting) and aggregated sector project ratings (50% weighting). Strategic positioning, impact, and ADB performance are weighted at 20%, 20%, and 10% of the overall performance rating, respectively. More emphasis is given to the relevance and effectiveness of ADB transactions (20% weighting, respectively) than to sustainability (10% weighting), given the ongoing nature of some of the assistance. Project ratings reflect only evaluation findings for PPP-related assistance components in reviewed loan and technical assistance (TA) projects. TA ratings account for half of the project ratings. The relative weighting of sectors is 35% for cross-sector assistance, 25% for power, 15% for roads and water each, as well as, 5% for the smaller railways/urban rapid transit systems and ports subsectors largely reflects their share in ADB's PPP assistance.

10. Results of the assessment of evaluation criteria by sector for PPP assistance from the public sector window are in Tables 1.2−1.5. Sector performance ratings are given in Table 1.6 and overall ratings of ADB's PPP assistance from the public sector window are in Table 1.7.

Table A1.2: Assessment of Strategic Positioning, by Sector

	Cross-Sector	Power	Roads	Ports	Rails	Water
Strategic Direction/Vision	Modest	Substantial	Modest	Modest	Modest	Modest
Selectivity	Substantial	Substantial	Modest	Modest	Substantial	Modest
Relationships with PPP Candidates	Substantial	Substantial	Modest to Substantial	Modest	Modest to Substantial	Modest
Support for Relevant Reforms and Sequencing	Modest	High	Modest to Substantial	Substantial	Modest to Substantial	Substantial
Effort Levels	Modest to Substantial	Modest	Substantial	Modest to Substantial	Modest to Substantial	Modest to Substantial
Aid Coordination	Substantial	Substantial	Substantial	Substantial	Substantial	Substantial
STRATEGIC POSITIONING	**Substantial**	**Substantial**	**Modest to Substantial**	**Modest**	**Substantial**	**Modest**

PPP=public–private partnership.
Source: Independent Evaluation Mission.

Table A1.3: Assessment of Project-Level Assistance, by Sector

	Cross-Sector	Power	Roads	Ports	Rails	Water
RELEVANCE	Relevant	Relevant to Highly Relevant	Relevant	Relevant	Relevant	Relevant
EFFECTIVENESS	Partly Effective (high)	Effective	Effective	Partly Effective	Effective	Partly Effective
SUSTAINABILITY	Less Likely	Likely	Likely	Less Likely	Likely	Less Likely

Source: Independent Evaluation Mission.

Table A1.4: Assessment of Impact/Additionality, by Sector

	Cross-Sector	Power	Roads	Ports	Rails	Water
Follow-On Transactions	Negligible to Modest	Modest to Substantial	Modest to Substantial	Negligible to Modest	Negligible to Modest	Modest
Economic Impact of Supported PPP Transactions/Approaches	Likely Substantial	Substantial	Modest to Substantial	Modest to Substantial	Modest	Modest
Improvement of PPP Capacity	Likely Substantial	Modest	Modest to Substantial	Modest	Modest	Modest
ADB Value Addition	Modest to Substantial	Modest to Substantial	Modest to Substantial	Modest	Substantial	Modest to Substantial
IMPACT/ADDITIONALITY	**Modest to Substantial**	**Modest to Substantial**	**Modest to Substantial**	**Modest**	**Modest**	**Modest**

ADB=Asian Development Bank, PPP=public–private partnership.
Source: Independent Evaluation Mission.

Table A1.5: ADB Performance, by Sector

	Cross-Sector	Power	Roads	Ports	Rails	Water
Staff Expertise, Resource Levels, and Deployment	Partly Satisfactory	Partly satisfactory	Partly Satisfactory	Partly Satisfactory	Borderline Satisfactory	Satisfactory
Consultant Performance	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Internal Coordination	Satisfactory	Satisfactory	Partly Satisfactory	Partly Satisfactory	Partly Satisfactory	Partly Satisfactory
Quality and Quantity of ESW	Borderline Satisfactory	Partly Satisfactory	Partly Satisfactory	Negligible	Negligible	Partly Satisfactory
Responsiveness	Satisfactory	Satisfactory	Satisfactory	Partly Satisfactory	Satisfactory	Satisfactory
ADB PERFROMANCE	**Satisfactory**	**Satisfactory**	**Partly Satisfactory**	**Partly Satisfactory**	**Partly Satisfactory**	**Satisfactory**

ADB=Asian Development Bank, ESW = economic and sector work.
Source: Independent Evaluation Mission.

Table A1.6: Summary Sector Performance Ratings[a] for Public Sector PPP Assistance

	Cross-Sector (35%)	Power (25%)	Roads (15%)	Ports (5%)	Rails (5%)	Water (15%)
Strategic Positioning	1.7	2.0	1.5	1.3	1.6	1.4
Relevance	1.8	2.5	2.0	2.0	2.0	2.3
Effectiveness	1.5	1.8	1.8	1.0	2.0	1.5
Sustainability	1.3	1.6	1.6	1.1	1.6	1.0
Impact/Additionality	1.5	1.5	1.5	1.0	1.1	1.1
ADB Performance	1.7	1.6	1.4	1.0	1.3	1.6
Sector Performance	**1.6**	**1.9**	**1.7**	**1.3**	**1.6**	**1.5**

ADB=Asian Development Bank.
[a] Ratings range from 3 to 0: high = 3, substantial = 2, modest = 1, negligible = 0.
[b] Overall rating: $\geq$2.7 = highly successful, $\geq$1.6<2.7 = successful, $\geq$0.8<1.6 = partly successful, <0.8 = unsuccessful.
Source: Independent Evaluation Mission.

Table A1.7: Performance Rating[a] for ADB PPP Assistance from Public Sector Window

Rating Category	Weight	Rating (0–3)[b]	Score
Project Rating	**0.5**		**0.88**
Relevance	0.2	2.1	0.42
Effectiveness	0.2	1.62	0.32
Sustainability	0.1	1.38	0.14
Institutional Rating	**0.5**		**0.77**
Strategic Positioning	0.2	1.68	0.34
Impact/Additionality	0.2	1.36	0.27
ADB Performance	0.1	1.56	0.16
Overall Performance Rating			**1.65**

ADB=Asian Development Bank, PPP=public–private partnership.

[a] High = 3, substantial = 2, modest = 1, negligible = 0.

[b] Overall rating: ≥2.7 = highly successful, ≥1.6<2.7 = successful, ≥0.8<1.6 = partly successful, <0.8 = unsuccessful.

Source: Independent Evaluation Mission.

DATA ON ASIAN DEVELOPMENT BANK ASSISTANCE FOR PUBLIC-PRIVATE PARTNERSHIP IN INFRASTRUCTURE

Table A2.1: ADB Loans with PPP Content, Public Sector Window

Loan No.	DMC	Project Name	Amount ($M)	Date Approved
A. Power				
1329	LAO	Theun-Hinboun Hydropower Project	60.0	8-Nov-94
1694	RMI	Ebeye Health and Insfrastructure Project	9.3	12-Aug-99
1803	IND	Gujarat Power Sector Development Program	150.0	13-Dec-00
1984	PHI	Electricity Market and Transmission Development	40.0	19-Dec-02
2036	IND	Assam Power Sector Development Program	150.0	10-Dec-03
2162	LAO	Nam-Theun 2 Hydroelectric Project	20.0	4-Apr-05
2282	PHI	Power Sector Development Program	450.0	8-Dec-06
2353	VIE	Mong Duong Thermal Power	27.9	2-Oct-07
2464	BHU	Green Power Development	80.0	8-Oct-08
		Subtotal (A)	**987.2**	
B. Roads				
1747	IND	Surat-Manor Tollway	180.0	27-Jul-00
1839	IND	Western Transport India Corridor	240.0	20-Sep-01
1944	IND	East-West Corridor	320.0	26-Nov-02
1958	IND	Madhya Pradesh State Roads Sector Development Program	30.0	5-Dec-02
		Subtotal (B)	**770.0**	
C. Ports				
1559	INO	Belawan, Banjarmasin, Balikpapan Ports	100.0	30-Sep-97
1841	SRI	Colombo Port Efficiency and Expansion	10.0	27-Sep-01
2319	SRI	Colombo Port Expansion	300.0	27-Feb-07
		Subtotal (C)	**410.0**	
D. Railways				
2116	PRC	Dali-Lijiang Railway	180.0	2-Dec-04
2182	PRC	Zheng Zhou- Xi'an Railway	400.0	22-Sep-05
		Subtotal (D)	**580.0**	
E. Water Supply and Sanitation				
1813	IND	Calcutta Environmental Improvement	250.0	19-Dec-00
2012	PHI	MWSS New Water Source Development	3.3	14-Oct-03
2026	SAM	Sanitation and Drainage	8.0	27-Nov-03
2058	NEP	Kathmandu Valley Water Services Sector Development	5.0	18-Dec-03
2293	IND	Kolkata Environmental Improvement	80.0	14-Dec-06
2312	IND	North Karnataka Urban Sector Investment	33.0	26-Jan-07
		Subtotal (E)	**379.3**	
F. Cross-Sector				
1480/1/2	IND	Private Sector Infrastructure Facility	300.0	7-Nov-96
1506	IND	Gujarat Public Sector Resource Management Program	250.0	18-Dec-96
1720	IND	Urban and Environmental Infrastructure Facility	80.0	17-Dec-99
1729	PHI	LGU Private Infrastructure Development Facility	20.0	17-Dec-99
1800	SRI	Private Sector Development Program	85.0	12-Dec-00
1871/72	IND	Private Sector Infrastructure Facility at State Level	100.0	11-Dec-01

Loan No.	DMC	Project Name	Amount ($M)	Date Approved
2178	PAK	Infrastructure Development	25.0	18-Aug-05
2228	INO	Development Policy Support Program	200.0	21-Dec-05
2270	PAK	Private Participation in Infrastructure	400.0	31-Oct-06
2263	INO	Infrastructure Reform Sector Development Program (Subprogram 1)	400.0	21-Nov-06
2264	INO	Infrastructure Reform Sector Development Program (Project Loan)	26.5	21-Nov-06
2315/16	PHI	Development Policy Support Program	100.0	13-Feb-07
2385	PAK	Punjab Government Efficiency Improvement Program	250.0	10-Dec-07
2404	IND	India Infrastructure Project Financing Facility	300.0	20-Dec-07
2453/54	BAN	Public-Private Infrastructure Development Facility	165.0	11-Sep-08
2475	INO	Infrastructure Reform Sector Development Program (Subprogram 2)	280.0	27-Nov-08
		Subtotal (F)	**2981.5**	
		Total	**6108.0**	
Other Sectors Not Covered by SES				
2366	IND	Rajasthan Urban Sector Development Investment Program	60.0	8-Nov-07
2407	PRC	Gansu Baiyin Urban Development	80.0	23-Jan-08
		Total	**140.0**	

ADB = Asian Development Bank, DMC = developing member country, IND = India, INO = Indonesia, KGZ = Kyrgyz Republic, LAO = Lao People's Democratic Republic, LGU = local government unit, M = million, MWSS = Metropolitan Waterworks and Sewerage System, NEP = Nepal, PAK = Pakistan, PHI = Philippines, PPP = public-private partnership, PRC = People's Republic of China, RMI = Republic of the Marshall Islands, SAM = Samoa, SRI = Sri Lanka, VIE = Viet Nam.

Table A2.2: ADB Technical Assistance with PPP Content

TA No.	DMC	TA Name	Type of TA	Amount ($'000)	Date Approved
A. Power					
2054	LAO	Theun-Hinboun Power	AD	100.0	4-Jan-94
2170	PRC	Introduction of BOO/BOT Concept for Shanghai Waigaoqiao Stage II Project	AD	600.0	27-Sep-94
2338	BAN	Solicitation of Private Sector Implementation of the Meghnaghat Power	AD	211.0	30-May-95
	BAN	Solicitation of Private Sector Implementation of the Meghnaghat Power -(Supplementary)	AD	222.0	12-Mar-97
	BAN	Solicitation of Private Sector Implementation of the Meghnaghat Power -(Supplementary)	AD	165.0	3-Aug-98
2510	PRC	Policy, Regulatory, Institutional Framework for FDI in the PRC Power Sector	AD	751.0	22-Dec-95
2730	PRC	BOT Changsha Power	AD	597.0	23-Dec-96
2742	IND	Solicitation of Private Sector Implementation of Chhara Combined Cycle Power	AD	375.0	17-Dec-96
2809	PAK	Private Hydropower Policy Study	AD	100.0	11-Jun-97
3380	IND	Private Sector Participation in Electricity Transmission	AD	600.0	28-Dec-99
3502	PAK	Support for Privatization of Karachi Electric Supply Corporation	AD	1,000.0	22-Sep-00
3807	INO	Regional Power Transmission and Competitive Market Development	PP	500.0	18-Dec-01

TA No.	DMC	TA Name	Type of TA	Amount ($'000)	Date Approved
4557	PHI	Institutional Strengthening of Energy Regulatory Commission and Privatization of NPC	AD	1,200.0	28-Dec-04
4670	VIE	Mong Duong Thermal Power Generation	AD	400.0	17-Oct-05
		Mong Duong Thermal Power Generation-(Supplementary)	AD	150.0	1-Dec-05
4845	VIE	Preparing the Support for Public Private Development of the O Mon Thermal Power Complex	PP	1,700.0	29-Sep-06
	VIE	Preparing the Support for Public Private Development of the O Mon Thermal Power Complex (Supplementary)	PP	740.0	10-Jan-08
4898	BAN	Promotion of Private Sector Participation in Power Sector	AD	600.0	15-Dec-06
4916	BHU	Preparing the Bhutan Power Development	PP	1,600.0	8-Jan-07
4953	BAN	Tendering Process for Independent Power Producer Plants	AD	600.0	16-Jul-07
4997	NEP	Promoting Private Sector Participation in Power Sector	AD	600.0	3-Dec-07
		Subtotal (A)		**12,811.0**	
B. Roads					
1403	IND	PSP in Expressway Financing, Construction and Operations	AD	500.0	30-Oct-90
1972	PRC	Policy and Institutional Support in the Road Sector	AD	1,200.0	9-Nov-93
2176	PAK	PSP in Highway Financing, Construction and Operations	AD	475.0	29-Sep-94
2409	PRC	Appraisal Methodologies and Restructuring of Highway Financing in Hebei Province	AD	740.0	28-Sep-95
2487	PHI	Preparation of National Transport Strategy	AD	1,000.0	19-Dec-95
2527	INO	Private Sector Participation in the Transport Sector	AD	900.0	23-Jan-96
2649	PRC	Facilitating the BOT Modality in the Highway Sector	AD	1,100.0	27-Sep-96
2952	PRC	Corporatization, Leasing, and Securitization in Road Sector	AD	1,000.0	17-Dec-97
2986	IND	Western Transport Corridor-Facilitating Private Participation	PP	1,000.0	9-Feb-98
3102	PRC	Chongqing-Guizhou Expressway	AD	900.0	26-Nov-98
	PRC	Chongqing-Guizhou Expressway -(Supplementary)	AD	100.0	10-Nov-99
3524	PHI	Rural Road Development	PP	1,000.0	26-Oct-00
3569	PRC	Jiangsu Highway BOT Project	AD	555.0	12-Dec-00
4013	IND	Institutional Strengthening and Capacity Building for Madhya Pradesh State Road Sector	AD	1,500.0	5-Dec-02
		Institutional Strengthening and Capacity Building for Madhya Pradesh State Road Sector- (Supplementary)	AD	600.0	29-Apr-05
4178	SRI	Preparing PPP Expressway Project	PP	800.0	17-Sep-03
4271	IND	Developing of High Density Corridors under PPP	AD	700.0	18-Dec-03
4400	PAK	Transport Policy Support	AD	290.0	30-Sep-04
4508	PAK	Facilitating PPP Infrastructure in National Highway Development	PP	150.0	20-Dec-04
4695	VIE	Development of Expressway Network Development Plan	AD	850.0	23-Nov-05
	VIE	Development of Expressway Network Development Plan-(Supplementary)	AD	300.0	20-Dec-05
	VIE	Development of Expressway Network Development Plan-(Supplementary)	AD	600.0	30-Apr-07

TA No.	DMC	TA Name	Type of TA	Amount ($'000)	Date Approved
	VIE	Development of Expressway Network Development Plan-(Supplementary)	AD	200.0	3-Dec-07
		Subtotal (B)		**17,160.0**	
C. Railways					
2968	PHI	Transport Infrastructure and Capacity Development	PP	1,000.0	24-Dec-97
3410	SRI	Establishing PPP for Railways	AD	150.0	8-Mar-00
3414	CAM	Capacity Building in Public-Private Partnership for Transport	AD	150.0	15-Mar-00
4645	CAM	Restructuring of the Railway in Cambodia	AD	1,500.0	14-Sep-05
		Restructuring of the Railway in Cambodia-(Supplementary)	AD	250.0	25-May-07
4676	THA	Infrastructure Investment Advisory Assistance to the Public Debt Management Office of Thailand	AD	150.0	31-Oct-05
		Infrastructure Investment Advisory Assistance to the Public Debt Management Office of Thailand-(Supplementary)	AD	131.0	10-Feb-06
4724	PRC	Application of PPP in Urban Rail-Based Transport Project	AD	500.0	8-Dec-05
4904	THA	Infrastructure Investment Advisory Assistance	AD	450.0	18-Dec-06
		Subtotal (C)		**4,281.0**	
D. Ports					
2386	INO	Belawan Port	PP	595.0	31-Aug-95
2402	INO	Balikpapan, Banjarmasin and Gresik Ports Development	PP	900.0	22-Sep-95
4144	INO	Facilitation PPP in Ports Infrastructure under Decentralization	AD	315.0	9-Jul-03
		Subtotal (D)		**1,810.0**	
E. Water Supply and Sanitation					
1907	THA	Privatization of Water Supply Operations	AD	317.0	2-Jul-93
2401	PHI	MWSS Privatization Report	AD	582.0	21-Sep-95
2502	PHI	Private Sector Participation in Urban Infrastructure	AD	500.0	22-Dec-95
2504	PRC	Seminar on BOT in Water Supply Sector	AD	100.0	22-Dec-95
2804	PRC	BOT Chengdu Water Supply	AD	600.0	2-Jun-97
2837	INO	Capacity Building for Private Sector Participation in Urban Development	AD	850.0	11-Aug-97
3703	PHI	Capacity Building for the Regulatory Office of the Metropolitan Waterworks and Sewerage System	AD	800.0	8-Aug-01
3761	INO	Regulatory Framework for Private and Public Water Supply and Wastewater Enterprises	AD	790.0	6-Nov-01
3804	INO	PSP Development Facility for Urban Infrastructure Project	PP	600.0	17-Dec-01
4049	SRI	Strengthening the Regulatory Framework for Water Supply and Sanitation	AD	285.0	18-Dec-02
	SRI	Strengthening the Regulatory Framework for Water Supply and Sanitation- (Supplementary)	AD	40.0	13-Dec-06
4095	PRC	Policy Reform Support	AD	150.0	11-Apr-03
7089	VIE	Hue Water Supply	PP	1,500.0	13-Jun-08
7091	VIE	Ho Chi Minh City Water Supply	PP	1,500.0	24-Jun-08
7144	VIE	Da Nang Water Supply	PP	1,500.0	1-Oct-08
		Subtotal (E)		**10,114.0**	

TA No.	DMC	TA Name	Type of TA	Amount ($'000)	Date Approved
F. Cross-Sector					
2359	THA	PPP in Infrastructure	PP	100.0	6-Jul-95
2644	PHI	LGU/Private Sector Infrastructure Facility	PP	80.0	13-Sep-96
3349	PHI	Capacity Building in Local Government Unit Financing	AD	600.0	20-Dec-99
3791	IND	Enhancing PSP in Infrastructure Development at State Level	AD	1,500.0	11-Dec-01
4154	PAK	Preparing the PPP Infrastructure Financing Facility	PP	400.0	25-Jul-03
4635	PAK	Support for Infrastructure Investment	AD	150.0	18-Aug-05
4668	PAK	Preparing Private Participation in Infrastructure Sector Development Program	PP	1,000.0	13-Oct-05
4861	PAK	Supporting Private Participation in Infrastructure Program	AD	1,000.0	31-Oct-06
4872	INO	Enhancing PSP in Infrastructure Provision	AD	2,000.0	21-Nov-06
4890	IND	Mainstreaming Public-Private Partnership at the State Level	AD	3,000.0	11-Dec-06
		Mainstreaming Public-Private Partnership at the State Level- (Supplementary)	AD	2,000.0	8-Aug-08
4993	IND	Mainstreaming PPP at Central Line Ministries at Government of India	AD	2,000.0	16-Nov-07
7143	BAN	Capacity Development for the Infrastructure Development Company Limited	CD	500.0	11-Sep-08
7152	IND	Public-Private Partnership Pilot Project Initiative (Mainstreaming Public-Private Partnership)	PP	2,000.0	17-Oct-08
		Subtotal (F)		**16,330.0**	
		Total		**62,506.0**	
Other Sectors Not Covered by SES					
3092	BAN	Developing a Policy on PSP: Gas Transmission	PP	150.0	04-Nov-98
3450	SRI	Promotion of PSP in Oil and Gas Exploration	AD	325.0	01-Jun-00
3570	THA	Solid Waste Management Sector	AD	150.0	12-Dec-00
3671	INO	Gas Sector Development Plan	AD	490.0	11-Jun-01
4360	INO	Preparing the Gas Transportation Project through PPP	PP	910.0	20-Jul-04
4528	BAN	Promoting Private Sector Participation in Energy Sector	AD	500.0	23-Dec-04
4923	VIE	Support for the Public Private Development of the O Mon Gas Pipeline	PP	975.0	19-Mar-07
		Total		**3,500.0**	

CAM = Cambodia, CD = capacity development, DMC = developing member country, FDI = foreign direct investment, IND = India, INO = Indonesia, LAO = Lao People's Democratic Republic, LGU = local government unit, MWSS = Metropolitan Waterworks and Sewerage System, NEP = Nepal, NHAI = National Highway Authority of India, NPC = National Power Corporation, PAK = Pakistan, PHI = Philippines, PP = project preparatory, PPP = public-private partnership, PRC = People's Republic of China, PSP = private sector participation, SRI = Sri Lanka, TA = technical assistance, THA = Thailand, VIE = Viet Nam.

Table A2.3: ADB Knowledge Products on Public-Private Partnerships

	Seminars/Workshops/ADB Presentations	Date
1	Public-Private Partnerships in Transport in Cambodia (under TA 3414: Capacity Building in Public-Private Partnerships for Transport)	1 October 2000
2	Financing Development Projects: Public-Private Partnerships and a New Perspective on Financing Options (3 days, Penha Longa, Portugal)	24–26 June 2001
3	PPIAF/ADB Conference on Infrastructure Development: Private Solutions for the Poor-The Asian Perspective (2 days, ADB HQ)	12–14 March 2002

	Seminars/Workshops/ADB Presentations	Date
4	PPIAF/ADB Conference on Infrastructure Development- Private Solutions for the Poor: The Asian Perspective, Public-Private Partnerships of the Toll Roads in PRC (3 days, Manila, Philippines)	28–30 October 2002
5	Public-Private Partnerships in China's Urban Water Sector as presented in ADB Workshop on Sanitation and Wastewater Management (2 days, ADB HQ, Manila, Philippines	19–20 September 2005
6	Public-Private Partnership (PPP)/Private Sector Participation in Water (ADB HQ)	December 2005
7	Can PPP Provide the Basis for an Increased Pace of Infrastructure Development in Indonesia? (Jakarta, Indonesia)	May 2006
8	Implementing a PPP Programme: Key Messages for Government (Jakarta, Indonesia)	9 May 2006
9	PPP: Lessons from Experience and What ADB Can Offer (2 days, Ho Chi Minh, Vietnam)	15–16 June 2006
10	Facilitating Public-Private Partnership for Accelerated Infrastructure Development in India: Regional Workshops of Chief Secretaries on Public-Private Partnerships (4 days, Bangalore, New Delhi, Kolkata, Goa)	12 June 2006 26 July 2006 31 August 2006 2 September 2006
11	Indonesia Infrastructure Conference and Exhibition 2006 (3 days, Jakarta, Indonesia)	1–3 November 2006
12	Asia's Infrastructure Needs: The PPP Solution (2 days, Hongkong)	29–30 November 2006
13	Private Sector Development in the Pacific Islands (ADB HQ, Manila)	November 2006
14	Investing in Infrastructure to Sustain Growth: The Role of Private-Public Partnership (2 days, Cebu, Philippines)	8–10 December 2006
15	Public-Private Partnership for Infrastructure Development (2 days, Seoul, Korea)	4–5 October 2007
16	High-Level Conference on Mainstreaming Public-Private Partnerships in Urban Sector (2 days, Jaipur, India)	15–16 October 2007
17	Strengthening Private Sector Participation and Investment in Physical Infrastructure (4 days, ADBI, Tokyo, Japan)	19–22 November 2007
18	Asia Clean Energy Forum 2008: Discussion on Catalyzing Public- Private Partnership (6 days, ADB HQ, Manila Philippines)	2–7 May 2008
19	National seminar on the Public Sector Role in Managing Public-Private Partnerships (1 hour, Pakistan Resident Mission)	10 July 2008
20	The Third International Conference on Public-Private Policy and Management: Public-Private Partnerships (4 days, Bangalore, India)	3–6 August 2008
21	The Third GMSARN International Conference: Discussion on Public-Private Partnership (3 days, Kunming, China)	12–14 November 2008
22	Joint ADB/EIB Seminar on Public-Private Partnerships and Clean Energy Investments (3 hours, ADB HQ)	24 November 2008
23	Global Conference on Public Private Partnerships in Infrastructure (4 days, Washington, DC, USA)	15–18 December 2008
24	Seventh Ministerial Conference on Central Asia Regional Economic Cooperation	23 December 2008

	Publications/Dossiers/Notes	Date
1	Developing Best Practices for Promoting Private Sector Investment in Infrastructure (RETA 5753)	2001 (Publication Date)
2	Promoting Best Practices in Private Sector Participation in Urban Infrastructure in South Asia (RETA 6300)	13 January 2006
3	Expanding Access to Basic Services in Asia and the Pacific Region: Public-Private Partnerships for Poverty Reduction	November 2006
4	Public-Private Partnership In Infrastructure Development: The Role of Asian Development Bank and the Case of North Luzon Expressway (Philippines)	December 2006

	Publications/Dossiers/Notes	Date
5	Enabling Public-Private Partnerships for Infrastructure Development in South Asia	December 2006
6	Public-Private Partnership Handbook	March 2008
7	Knowledge Sharing on Infrastructure Public-Private Partnerships in Asia	20 October 2008

ADB = Asian Development Bank, ADBI = Asian Development Bank Institute, EIB = European Investment Bank, GMSARN = Greater Mekong Subregion Academic Research Network, HQ = headquarters, PPIAF = Public-Private Infrastructure Advisory Facility, PPP = public-private partnership, PRC = People's Republic of China, RETA = regional technical assistance, TA = technical assistance.

Table A2.4a: ADB's Private Sector Infrastructure Portfolio in Power, Roads, Ports, Railways, and Water—Approved Projects
(as of 31 December 2008)

Date Approved	Country	Company	Type Project	Equity	OCR	CFS	Guarantee	Total	Status
23-Nov-89	PHI	Hopewell Energy (Philippines) Corp.	PPP	1.1	10.0	10.0	0.0	21.1	Repaid
04-Oct-90	IND	CESC Limited	Corporate	0.0	17.8	0.0	0.0	17.8	Operating
06-Nov-90	THA	Bangkok Expressway Co. Ltd.	PPP	10.0	30.0	0.0	0.0	40.0	Repaid
13-Dec-91	IND	CESC Limited II	Corporate	0.0	32.0	0.0	0.0	32.0	Operating
22-Sep-92	PRC	Guangzhou Pearl River Power Co.	PPP	0.0	50.0	0.0	0.0	50.0	Repaid
18-May-93	PHI	Hopewell Power (Phils.) Corp.	PPP	10.0	40.0	0.0	0.0	50.0	Repaid
18-May-93	PHI	Batangas Power Corp.	PPP	3.0	26.5	0.0	0.0	29.5	Repaid
30-Sep-93	PAK	Fauji Oil Terminal & Distribution Co. Ltd.	Corporate	1.0	19.0	11.8	0.0	31.8	Operating
11-Apr-94	THA	Bangkok Expressway Co. Ltd.	PPP	7.1	0.0	0.0	0.0	7.1	Repaid
23-Jan-96	NEP	Himal Power Limited	PPP	0.0	36.5	0.0	0.0	36.5	Operating
23-Apr-96	PAK	Fauji Kabirwala Power Co. Ltd.	PPP	5.3	32.0	65.0	0.0	102.3	Operating
05-Dec-96	IND	Balagarh Power Co. Ltd.	PPP	15.0	25.0	100.0	0.0	140.0	Cancelled
26-Feb-98	PRC	Fujian Pacific Electric Co. Ltd.	PPP	10.0	40.0	150.0	0.0	200.0	Repaid
11-Feb-99	PRC	Chengdu Generale Des Eaux - Marubeni Waterworks Co. Ltd.	PPP	0.0	26.5	21.5	0.0	48.0	Operating
11-May-99	SRI	Colombo Port Development	PPP	7.4	35.0	0.0	0.0	42.4	Operating
14-Sep-99	PHI	Maynilad Water Services, Inc.	PPP	0.0	45.0	120.0	0.0	165.0	Cancelled
26-Oct-00	PHI	Manila North Tollways Corporation	PPP	0.0	45.0	25.0	0.0	70.0	operating
09-Nov-00	VIE	Lyonnaise Viet Nam Water Company	PPP	0.0	31.0	0.0	0.0	31.0	Cancelled
05-Dec-00	BAN	AES Meghnaghat Power	PPP	0.0	50.0	20.0	70.0	140.0	Operating
19-Dec-00	SRI	AES Kelanitissa Power	PPP	0.0	26.0	0.0	52.0	78.0	Operating
02-Jul-02	VIE	Mekong Energy Company Limited (Phu My 2.2 Power)	PPP	0.0	50.0	0.0	25.0	75.0	Operating
02-Jul-02	PRC	China Water Utility	PPP	0.0	35.0	0.0	0.0	35.0	Cancelled
18-Oct-02	VIE	Phu My 3 Power	PPP	0.0	40.0	0.0	35.0	75.0	Operating

Date Approved	Country	Company	Type Project	Equity	OCR	CFS	Guarantee	Total	Status
16-Jan-03	IND	Tala-Delhi Transmission	PPP	0.0	62.0	0.0	0.0	62.0	Operating
12-Nov-03	THA	BLCP Power Limited	PPP	0.0	40.0	170.0	0.0	210.0	Operating
25-Nov-04	IND	Torrent Power Generation Ltd.	PPP	20.6	54.4	0.0	0.0	75.0	Cancelled
04-Apr-05	LAO	Nam Theun 2 Power Company Limited	PPP	0.0	50.0	0.0	50.0	100.0	Operating
21-Nov-05	PAK	Laraib Energy Limited	PPP	0.0	37.3	0.0	0.0	37.3	Prior to operations
20-Dec-05	PRC	Thunip Water Investment Co., Ltd.	PPP	20.0	0.0	0.0	0.0	20.0	Cancelled
17-Apr-07	IND	The Tata Power Company Limited (TPC)	Corporate	0.0	79.3	0.0	0.0	79.3	Prior to operations
29-May-07	PAK	Karachi Electric Supply Corporation Limited (KESC)	PPP	0.0	150.0	0.0	0.0	150.0	Prior to operations
27-Jun-07	CAM	(Cambodia) Power Transmission Lines Co., Ltd. (CPTL)	PPP	0.0	8.0	0.0	0.0	8.0	Prior to operations
31-Aug-07	INO	Pt Pam Lyonnaise Jaya (PALYJA)	PPP	0.0	50.0	0.0	0.0	50.0	Prior to operations
30-Oct-07	PAK	Foundation Power Company Daharki Limited	PPP	2.8	0.0	0.0	44.0	46.8	Prior to operations
15-Jan-08	PHI	Masinloc Power Partners Company Limited (MPPC)	Corporate	0.0	200.0	0.0	0.0	200.0	Prior to operations
17-Apr-08	IND	Mundra Ultra Mega Power	PPP	0.0	450.0	0.0	0.0	450.0	Prior to operations
17-Apr-08	IND	Gujarat Paguthan Wind	Corporate	0.0	45.0	0.0	0.0	45.0	Prior to operations
17-Apr-08	IND	CLP Wind Farms	Corporate	0.0	60.0	0.0	0.0	60.0	Prior to operations
02-Jun-08	PHI	Calaca Power	PPP	0.0	120.0	0.0	90.0	210.0	Cancelled
29-Jul-08	PRC	Inner Mongolia Wind	Corporate	0.0	24.0	0.0	0.0	24.0	Prior to operations
23-Oct-08	IND	Nhi Panipat To Jalandhar Toll Road	PPP	0.0	100.0	140.0	0.0	240.0	Prior to operations
		Total		**113.3**	**2,272.3**	**833.3**	**366.0**	**3,584.9**	

ADB = Asian Development Bank, BAN = Bangladesh, CAM = Cambodia, CFS = complementary financing scheme, IND = India, INO = Indonesia, LAO = Lao People's Democratic Republic, NEP = Nepal, OCR = ordinary capital resources, PAK = Pakistan, PHI = Philippines, PPP = public-private partnership, PRC = People's Republic of China, THA = Thailand, SRI = Sri Lanka, VIE = Viet Nam.
Source: Asian Development Bank database.

Table A2.4b: ADB's Private Sector Infrastructure Portfolio in Sectors Not Covered by SES —Approved Projects
(as of 31 December 2008)

Date Approved	Country	Company	Type Project	Equity	OCR	CFS	Guarantee	Total	Status
29-Mar-88	PHI	Phil. Long Distance Telephone Co.	Corporate	0.0	24.0	0.0	0.0	24.0	Repaid
20-Jan-98	BAN	Grameenphone Telecommunications	Corporate	1.6	16.7	0.0	0.0	18.3	Operating
17-Dec-99	PHI	Philippine International Air Terminals Co. Inc.	PPP	0.0	40.0	40.0	0.0	80.0	Cancelled
13-Jan-04	IND	Petronet LNG Ltd	PPP	9.7	0.0	0.0	0.0	9.7	Operating
26-Jan-04	BAN	Grameenphone Telecommunications Expansion	Corporate	0.0	20.0	0.0	0.0	20.0	Operating
04-Nov-04	AFG	Telecom Development Company Afghanistan B. V.	Corporate	0.0	35.0	0.0	0.0	35.0	Operating
14-Dec-05	INO	Tangguh Liquified Natural Gas	Corporate	0.0	350.0	0.0	0.0	350.0	Operating
17-Jan-06	IND	Central Uttar Pradesh Gas Limited (CUGL)	PPP	2.6	0.0	0.0	0.0	2.6	Operating
29-Jun-06	AFG	Roshan Phase II Expansion-Telecom Development Company Afghanistan Limited	Corporate	0.0	40.0	30.0	15.0	85.0	Operating
10-Aug-06	INO	PT Perusahaan Gas Negara (Persero) Tbk	PPP	0.0	75.0	125.0	0.0	200.0	Cancelled
30-Aug-06	IND	Petronet LNG	PPP	0.0	150.0	0.0	0.0	150.0	Operating
30-Aug-06	PRC	China Gas Holdings	PPP	25.0	50.0	75.0	0.0	150.0	Operating
11-Dec-07	PRC	Central and Western Airports Development Project	PPP	50.0	160.0	200.0	0.0	410.0	Prior to operations
14-Dec-07	PRC	Energy Efficiency Multi-Project Financing Program	Corporate	0.0	0.0	0.0	107.0	107.0	Prior to operations
23-May-08	IND	GTLl Infrastructure	Corporate	0.0	150.0	0.0	0.0	150.0	Prior to operations
02-Jun-08	PRC	Municipal District Energy	Corporate	0.0	200.0	200.0	0.0	400.0	Prior to operations
29-Jul-08	AFG	Roshan Phase III Expansion	Corporate	0.0	60.0	0.0	10.0	70.0	Prior to operations
		Total		**88.9**	**1370.7**	**670.0**	**132.0**	**2261.6**	

AFG = Afghanistan; BAN = Bangladesh; CAM = Cambodia; CFS= complementary financing scheme; IND = India; INO = Indonesia; LAO; Lao PDR; NEP = Nepal; OCR = ordinary capital resources; PAK = Pakistan; PHI = Philippines; PRC = People's Republic of China; PSOD = Private Sector Operations Department; THA = Thailand; SRI = Sri Lanka; VIE = Viet Nam.
Source: Asian Development Bank database.

Table A2.5: ADB Support for PPPs through the Public Sector Window, by Sector and Assistance Type

Assistance Type/ Subsector	Power	Roads	Ports	Railways/Urban Rapid Transit Systems	Water Supply	Cross-Sector
Assistance for PPP Policy and Regulatory Framework	Loans IND (2), PAK, PHI (2)	Loans IND, INO (2), PAK	Loans PAK	Loans PAK, PRC (2)	Loans PAK	Loans IND, INO (2) PAK, PHI, SRI
	TA projects BAN,BHU, INO, NEP, PAK, PHI, PRC	TA projects IND (3), INO, PAK (2), PHI (2), PRC (2), SRI	TA projects INO	TA projects CAM, SRI, PHI, THA	TA projects INO, PHI (2), PRC (2), SRI	TA projects IND, INO (2), PAK (3), PHI, THA
Assistance for PPP Transactions	Loans BHU, LAO (2), RMI, VIE	Loans IND (3)	Loans INO, SRI	-	Loans IND (3), NEP, PHI, SAM	Loans BAN, IND (7), INO, PAK, PHI
	TA projects BHU, BAN (2), IND (2), LAO, PAK, PRC(2), VIE (2)	TA projects IND (2), PRC (2), PHI, SRI, VIE	TA projects INO (3), SRI	TA projects CAM, PRC, THA	TA projects IND, INO (3), PHI, PRC, SRI, THA, VIE (3)	TA projects BAN, IND(3), INO (2), PHI, THA

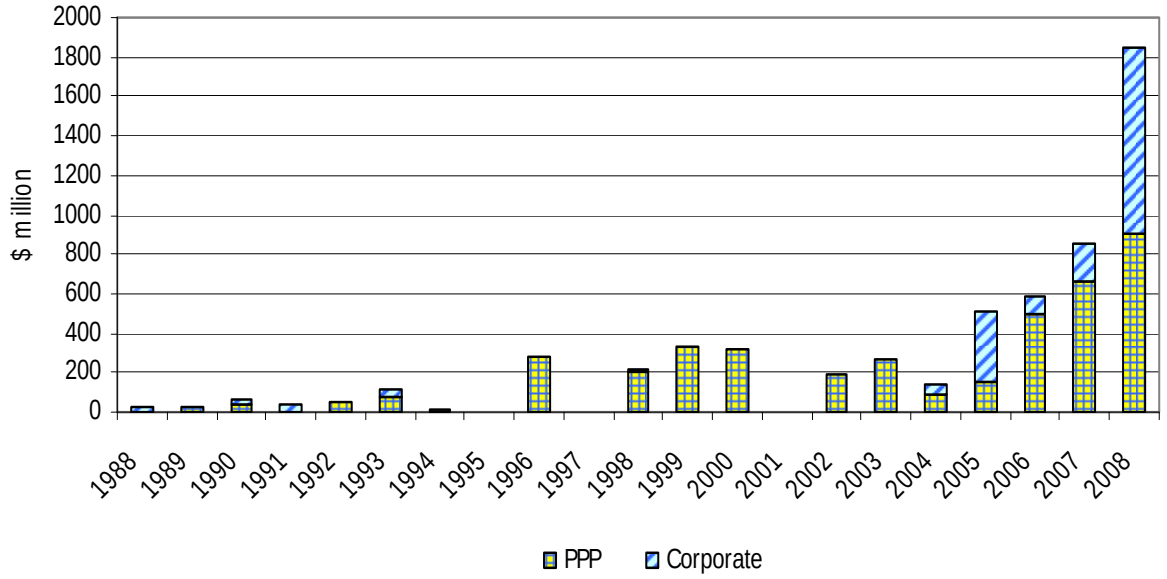
ADB = Asian Development Bank, BAN = Bangladesh, BHU = Bhutan, CAM = Cambodia, IND = India, INO = Indonesia, LAO = Lao People's Democratic Republic, NEP = Nepal, PAK = Pakistan, PHI = Philippines, PPP = public-private partnership, PRC = People's Republic of China, RMI= Republic of the Marshall Islands, SRI = Sri Lanka, TA = technical assistance, THA = Thailand, VIE = Viet Nam.
Note: The table contains double-listings of projects that provide assistance for PPP frameworks and PPP transactions or PPP assistance in several sectors.
Source: Independent Evaluation Mission.

Table 2.6: ADB Support for PPPs through the Public Sector Window, by Sector and Time Period

	1990–1997	1998–2003	2004–2008	Total
Loan Projects				
Power	1	4	4	9
Roads	-	4	-	4
Ports	1	1	1	3
Railways/Urban Rapid Transit Systems	-	1	2	3
Water Supply	-	4	2	6
Cross-Sector	4	5	9	18
Total	**6**	**19**	**18**	**43**
TA Projects				
Power	7	3	7	17
rRoads	8	8	3	19
Ports	2	-	1	3
Railways/Urban Rapid Transit Systems	1	2	4	7
Water Supply	5	5	4	14
Cross-Sector	2	2	9	13
Total	**25**	**20**	**28**	**73**

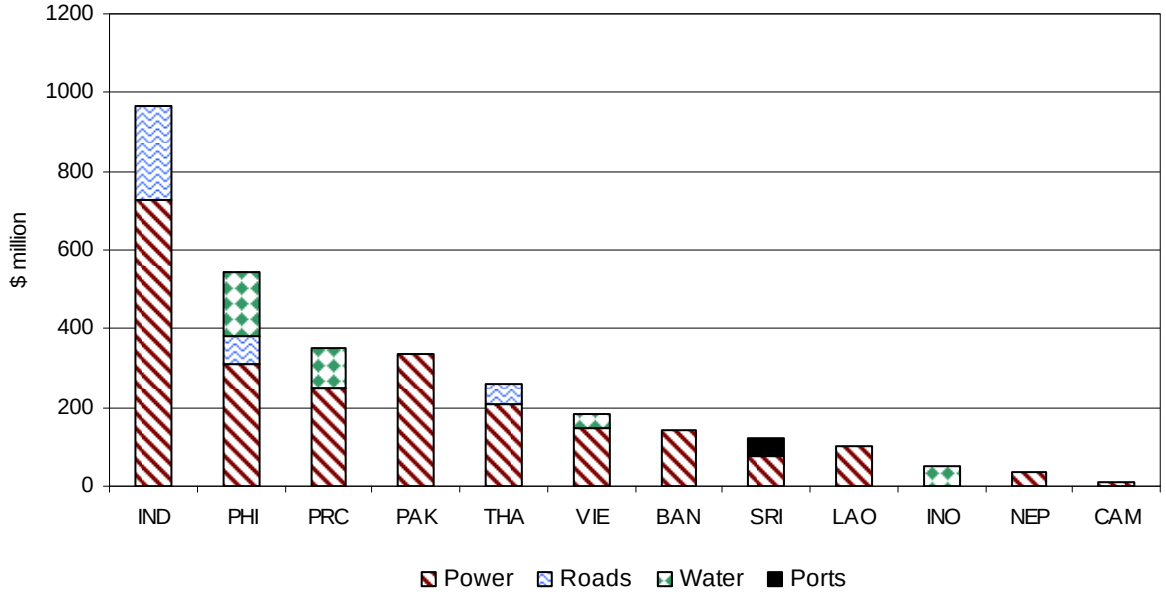
ADB = Asian Development Bank, PPP = public-private partnership, TA = technical assistance.
Source: Independent Evaluation Mission.

Figure A2.1: PSOD Infrastructure Projects, by Type, 1988−2008



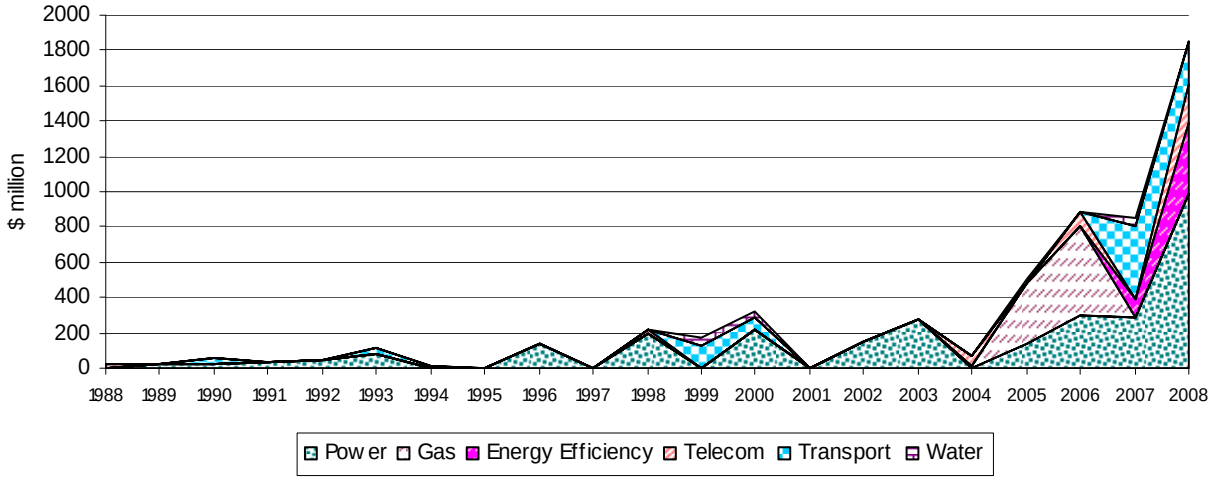
PPP = public-private partnership, PSOD = Private Sector Operations Department, Source: Asian Development Bank records.

Figure A2.2: Approvals of PSOD PPP Infrastructure Transactions in Selected Sectors by DMC and Sector, 1988−2008



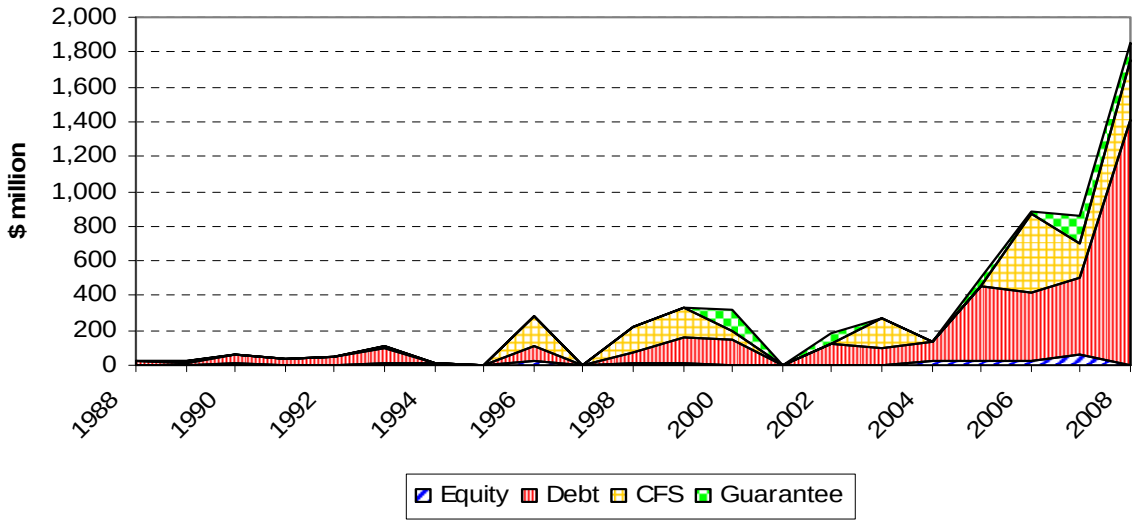
BAN = Bangladesh, CAM = Cambodia, DMC = developing member country, IND = India, INO = Indonesia, LAO = Lao People's Democratic Republic, NEP = Nepal, PAK = Pakistan, PHI = Philippines, PPP = public–private partnership, PRC = People's Republic of China, PSOD = Private Sector Operations Department, SRI = Sri Lanka, THA = Thailand, VIE = Viet Nam.
Source: Asian Development Bank records.

Figure A2.3: PSOD Infrastructure Portfolio by Sector, 1988–2008



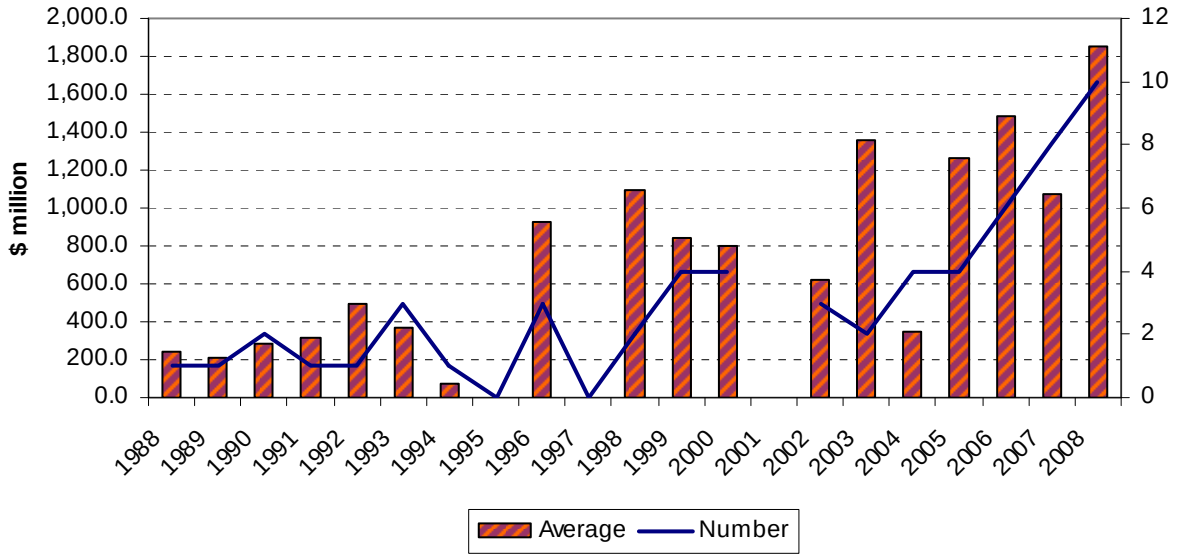
PSOD = Private Sector Operations Department.
Source: Asian Development Bank records.

Figure A2.4: PSOD Infrastructure Projects, by Financial Instrument, 1988−2007



CFS = complementary financing scheme, PSOD = Private Sector Operations Department.
Source: Asian Development Bank records.

Figure A2.5: PSOD Infrastructure Projects, by Transaction Volumes and Numbers, 1988–2008



PSOD = Private Sector Operations Department.
Source: Asian Development Bank records.

LIST OF PPP PROJECTS IN DMCs

Table A3.1: Number of PPP Projects by DMC (Financial Closure 1988–2007)

Country	Power	Roads	Ports	Rails	Water
Armenia	2	0	0	0	3
Azerbaijan	3	0	0	0	1
Bangladesh	7	2	1	0	0
Cambodia	12	2	0	0	0
China, People's Republic of	155	130	55	6	257
Fiji Islands	1	0	0	0	0
Georgia	6	0	2	0	0
India	88	133	23	3	9
Indonesia	26	24	6	0	10
Kazakhstan	10	0	0	1	0
Kyrgyz Republic	0	0	0	0	1
Lao People's Democratic Republic	4	1	0	0	0
Malaysia	24	30	9	8	15
Myanmar	2	0	1	0	0
Nepal	5	0	0	0	0
Pakistan	31	0	6	0	0
Papua New Guinea	1	0	0	0	1
Philippines	50	4	5	1	5
Sri Lanka	13	0	1	0	0
Tajikistan	1	0	0	0	0
Thailand	52	4	11	3	16
Tonga	1	0	0	0	0
Uzbekistan	0	0	0	0	1
Vanuatu	1	0	0	0	0
Viet Nam	17	2	3	0	2

DMC = developing member country, PPP = public-private partnership.
Source: World Bank. 2009. Private Participation in Infrastructure (PPI) Project Database. Available on: http://ppi.worldbank.org/.

Table A3.2: Types of PPP Projects in DMCs (Financial Closure 1988–2007)

PPP Modality	Power	Roads	Ports	Rails	Water
Management and Lease Contracts	8	2	6	1	22
Greenfield BOT/BOO Projects	392	133	69	15	170
Other types of concessions	31	178	42	3	121
Partial Divestments	81	19	5	3	8
Total	**512**	**332**	**125**	**22**	**321**

BOO = build, own and operate, BOT = build, operate and transfer, DMC = developing member country, PPP = public-private partnership.
Source: World Bank. 2009. Private Participation in Infrastructure (PPI) Project Database. Available: http://ppi.worldbank.org/.