



Technical Assistance Report

Project Number: 51280-001
Knowledge and Support Technical Assistance (KSTA)
December 2017

Asia Infrastructure Insights

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Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
DMC	–	developing member country
ERCD	–	Economic Research and Regional Cooperation Department
GFCF	–	gross fixed capital formation
HLT	–	high-level technology
OPPP	–	Office of Public-Private Partnership
PPP	–	public–private partnership
PSOD	–	Private Sector Operations Department
SOE	–	state-owned enterprises
TA	–	technical assistance

NOTE

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

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KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 51280-001	
Project Name	Asia Infrastructure Insights	Department /Division	ERCDC/EREA
Nature of Activity	Research and Development	Executing Agency	Asian Development Bank
Modality	Regular		
Country	REG		
2. Sector		ADB Financing (\$ million)	
✓ Energy	Energy efficiency and conservation		0.13
	Renewable energy generation - solar		0.13
	Renewable energy generation - wind		0.14
Transport	Road transport (non-urban)		0.20
	Urban public transport		0.20
Water and other urban infrastructure and services	Urban sanitation		0.07
	Urban sewerage		0.07
	Urban water supply		0.06
	Total		1.00
3. Strategic Agenda		Climate Change Information	
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded	Climate Change impact on the Project	Low
Regional integration (RCI)	Pillar 1: Cross-border infrastructure		
4. Drivers of Change		Gender Equity and Mainstreaming	
Knowledge solutions (KNS)	Application and use of new knowledge solutions in key operational areas Knowledge sharing activities	Some gender elements (SGE)	✓
5. Poverty and SDG Targeting		Location Impact	
Geographic Targeting	No	Regional	High
Household Targeting	No		
SDG Targeting	Yes		
SDG Goals	SDG6, SDG7, SDG8, SDG9		
6. Risk Categorization		Low	
7. Safeguard Categorization			
Safeguard Policy Statement does not apply			
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		1.00	
Knowledge and Support technical assistance: Technical Assistance Special Fund		1.00	
Cofinancing		0.00	
None		0.00	
Counterpart		0.00	
None		0.00	
Total		1.00	

I. INTRODUCTION

1. The knowledge and support technical assistance (TA) attempts to facilitate and integrate the development of strategic knowledge on infrastructure in the region, both inside and outside the Asian Development Bank (ADB). The TA will focus on three important areas: (i) creating knowledge products that focus on strategic issues regarding infrastructure and its financing modality; (ii) integrating infrastructure knowledge products in the region through a publication entitled *Asia Infrastructure Insights*, and convening of regular consultation workshops and knowledge-dissemination events; and (iii) contributing to the development of methods for compiling data on infrastructure investments and their financing, and enhancing the availability of data required for policy analysis on infrastructure.

2. The TA is included in the ADB Management-approved annual work program of the ADB Economic Research and Regional Cooperation Department (ERCD), and is aligned with the three work areas identified in its work plan for 2017:¹ (i) improve research quality, so as to be the leading source of knowledge on Asian development, regionally and globally; (ii) add value to ADB operations departments² to enable them to become more responsive to client needs, and contribute to ADB knowledge solutions under the “one ADB” approach; and (iii) establish strong links with global and regional centers of excellence for research on critical development issues of relevance to Asia and the Pacific.

II. ISSUES

3. The Asia and Pacific region faces both a huge infrastructure investment gap, and high demand for knowledge on infrastructure, as discussed in the ADB *Meeting Asia's Infrastructure Needs* report.³ Policy dialogue with key stakeholders in the region during dissemination of the report revealed the large demand for knowledge on infrastructure to support necessary policy changes needed to close the infrastructure gap. Areas identified include innovative infrastructure financing, such as the increased role of bond (green) financing and land capture; high technology; public–private partnerships (PPPs); guarantees; insurance; and sector best practices in the region. The existence of unmitigated risk factors is considered to be a key reason for the lack of investor interest in infrastructure. Institutional investors have strong and increased interest in financing infrastructure in the region, but some significant constraints need to be addressed. Land-capture financing is a viable option to ease the government's fiscal constraints for selected infrastructure. There is strong interest from government stakeholders in the region regarding high-technology infrastructure, but a significant knowledge gap exists regarding the long-term benefits. While PPPs are being used in many countries in the region, the progress of developing PPPs remains relatively slow. ADB and other stakeholders have attempted to develop best practices across sectors, but knowledge generated from such operations is scattered, and not always published.

4. A recent ADB study on the drivers of growth in middle-income countries finds that infrastructure investments and capital will play a major role in transcending middle-income status.⁴ For developing countries in Asia, the infrastructure investment gap (i.e., the difference between investment needs and current investment levels) is equivalent to 2.4% of the projected gross domestic product from 2016 to 2020 (footnote 2). Traditional public resources for infrastructure investment have proven to be inadequate. More investments are needed in electricity, transport, telecommunication, and water and sanitation. Public sources comprise 92% of infrastructure

¹ The TA first appeared in the business opportunities section of ADB's website on 23 October 2017.

² The strategic studies produced under the TA will inform the preparation of Country Partnership Strategies of ADB's DMCs and ADB projects in infrastructure.

³ ADB. 2017. *Meeting Asia's Infrastructure Needs*. Manila.

⁴ ADB. 2017. *Asian Development Outlook: Transcending the Middle-Income Challenge*. Manila.

investments in the region, but, in many countries they are unlikely to meet even 50% of the infrastructure gap between investment needs and current investment levels.

5. With limited fiscal space and increased spending needs for health and education, expanding alternative nongovernment sources of infrastructure financing is imperative if the region is to achieve its infrastructure development target. To help meet the region's need for infrastructure financing, ADB will increase its operations to \$20 billion annually by 2020. Most private sector financing of infrastructure currently uses bank financing—bond markets are at an early stage of development in many ADB developing member countries (DMCs), and the complementarity between banking and bond financing has not been widely utilized. At many forums, large investors in developed countries have expressed interest in financing infrastructure development in the region, but the actual infrastructure investments financed from this source have remained limited because of various constraints. Some countries have made good progress in reforming their regulatory framework to enable PPP financing, but results to date are very modest. Stakeholders in many DMCs are keen to explore innovative infrastructure financing alternatives to increase the role of the private sector, using modalities such as green bonds, land value capture, and take-out financing. In this context, policymakers have expressed the need for knowledge support to facilitate informed dialogue as they seek to develop enabling policies to increase private sector infrastructure and green financing, and develop other innovative approaches to meet various infrastructure needs.

6. Adoption of high-level technology (HLT) will help maximize the development impact of infrastructure by facilitating a transition to low emission and climate-resilient growth. Appropriate HLT could also improve the functionality and efficiency of infrastructure and reduce its lifetime costs. DMCs have shown strong interest in HLT, and ADB has championed its application in its operations. Knowledge support to demonstrate the long-term benefits of HLT and to expand its adoption in various sectors, however, are still in an early stage of development.

7. ADB has strived to develop sector best practice in its infrastructure operations in various sectors. However, much of the tacit and explicit knowledge produced in these operations is not published. Published materials are scattered and tend to be disseminated in a low-profile manner. Selected infrastructure stakeholders in the region have also published their experience, but its reach to policy makers has been limited. Development and integration of these scattered infrastructure knowledge products into a flagship regional publication would facilitate regional knowledge sharing to enhance policy dialogue, inform development of enabling policies, and accelerate adoption of HLT and new financing modalities for infrastructure. This is in line with the objectives of the ADB Knowledge Framework for Strategy 2030, which seeks to make ADB a major facilitator of tacit and explicit knowledge in the region.

8. As noted in *Meeting Asia's Infrastructure Needs* (footnote 2), data on actual infrastructure investments undertaken by countries is surprisingly scarce. Investments in infrastructure are undertaken by different entities, including national and subnational governments, state-owned enterprises (SOEs), and the private sector. Governments do not typically publish data on aggregate infrastructure investments, and there is no single way or international best practice approach to measure it. However, sufficiently disaggregated data on gross fixed capital formation (GFCF) from countries' national accounts statistics presents a possible approach (footnote 2). In this context, a methodological exercise conducted jointly with national accounts statisticians and budget experts from selected DMCs is required to prepare a set of easy-to-implement guidelines for measuring infrastructure investments more consistently across countries and over time than is currently possible. Moreover, coordination with similar efforts being undertaken in other developing regions by the World Bank (for Africa) and Inter-American Development Bank (for

Latin America) could lead to the development of a global database on infrastructure investments by developing countries.⁵ In conjunction with existing databases on infrastructure investments and stocks, such a database, guided by principles and methodologies of open access, including bulk data and common data standards, would be very useful in undertaking policy analysis of infrastructure-related issues. The TA will also contribute to the creation of an infrastructure finance database.

III. THE TECHNICAL ASSISTANCE

A. Impacts and Outcome

9. The TA is aligned with the following impacts: (i) better-informed policy making on infrastructure and its financing made, and (ii) innovative financing modality for infrastructure mainstreamed. The TA will have the following outcome: enhanced knowledge base and policy dialogue on infrastructure policies in Asia and the Pacific.⁶

B. Outputs, Methods, and Activities

10. **Output 1: Knowledge products on infrastructure and its financing modality published.** Create and publish policy-based knowledge products, focusing on strategic issues on infrastructure and its financing modalities. For the first stage—based on consultation with DMC officials, sector and thematic working groups, the Office of Public–Private Partnership (OPPP), Private Sector Operations Department (PSOD), and regional departments—the TA will support new strategic studies on selected infrastructure issues, including on HLT; innovative infrastructure financing, including subnational infrastructure finance; and other policy enablers to accelerate infrastructure development in the region. For the subsequent publication, in the spirit of “one ADB”, ERCD will consult with sector and thematic working groups, OPPP, PSOD, and regional departments on the topics to be studied under the TA.

11. **Output 2: Asia Infrastructure Insights published.** To maximize knowledge-sharing and enhance policy dialogue in infrastructure development in the region, the TA will support the digital and hard copy publication of selected strategic studies, including those produced under output 1; sector good practices, as developed by ADB in its operations and by other infrastructure stakeholders; and the findings of impact evaluation studies produced by ADB. ERCD will host consultation workshops and undertake capacity building to present and discuss papers on the strategic studies and selected sector good practice to policy makers, academics, and international financial institutions. Through consultation, the TA will build and expand the knowledge base for good practice in infrastructure project implementation and innovative ways to finance infrastructure. Once the TA successfully completes the first few annual issues of Asia Infrastructure Insights, ERCD will process a new cluster TA to support regular publication of Asia Infrastructure Insights.

12. **Output 3: Pilot studies and guidelines on measuring infrastructure investments and their financing conducted.** Under output 3 the TA will conduct pilot methodological research, and develop guidelines for measurement of infrastructure investments. If possible, the TA will develop a database of infrastructure and infrastructure financing. By conducting methodological research and developing guidelines, the TA will contribute to a planned global database on infrastructure investments and their financing. A preliminary assessment described in *Meeting Asia's Infrastructure Needs* (footnote 2) indicates that disaggregated data on GFCF recorded in

⁵ Preliminary discussions with the World Bank have been held on their planned initiative to develop a global database of infrastructure spending across at least 70 countries in collaboration with ADB and other interested partners.

⁶ The design and monitoring framework is in Appendix 1.

national income accounts may enable better and comparable measurement of infrastructure investments, both across countries as well as by sector and possibly by institution (i.e., general government, SOEs, and private corporate sector). One components of the proposed infrastructure TA will assess the current GFCF methodology in national accounts of selected countries and use a pilot exercise to further develop a methodology for measuring infrastructure investments. The pilot exercise results will be discussed with DMCs and international agencies known to be working on improving infrastructure investment measures, including the Inter-American Development Bank and the World Bank. Where feasible, ADB will contribute to a global database of infrastructure investments being planned by the World Bank. The TA will also develop a database for public sector, private sector, and SOE infrastructure financing, and provide capacity building to implement the database in 5–10 participating DMCs.

C. Cost and Financing

13. The TA is estimated to cost \$1,000,000, which will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF 6). The key expenditure items are listed in Appendix 2.

14. The participating DMC governments will provide counterpart support in the form of access to official databases and database documents, assistance in data collection and provision of counterpart research staff, and other in-kind contributions.

D. Implementation Arrangements

15. ADB will administer the TA. ERCD will form a working group comprising representatives from ERCD, the Sustainable Development and Climate Change Department, OPPI, PSOD, and regional departments to guide the implementation of the TA. The working group will select the topic of strategic infrastructure studies to support ADB operations and policy discussions on infrastructure in the region. ERCD will also appoint on an ad hoc basis an external panel with varied expertise regarding the selected topic to guide specific strategic infrastructure studies to be covered by the TA.⁷ An external panel will be engaged as consultants and/or resource persons. Timeliness and topicality are among the criteria for selecting the topics. Participating DMCs will be determined by the respective working group through consultations with stakeholders.

16. **Knowledge partnerships**⁸. Experience gained through other knowledge and support TA projects have demonstrated significant value addition from collaboration with universities, think tanks, research institutions, and centers of excellence in producing studies of good quality and facilitating exchange of information. Various forms of collaboration will be considered including exchange of knowledge, participation of resource persons in consultation workshops, co-organization of workshops and dissemination activities, and contribution of background papers. The suitable institution to be nominated as a knowledge partner will have localized expertise on an identified topic of study, technical knowhow, a proven record of publishing good quality research on the study area, and the ability to conduct the study and organize workshops and knowledge-dissemination activities.

⁷ The external panel provides overall guidance in the conduct of the research.

⁸ Knowledge partnerships will be conducted in accordance with the *Staff Instruction on Business Processes for Knowledge Partnerships under Technical Assistance Operations* issued on 2 March 2017.

Table 1: Implementation Arrangements

Aspects	Arrangements		
Indicative implementation period	November 2017–December 2020		
Executing agency	ADB		
Implementing agencies	Economic Research and Regional Cooperation Department, Office of Public–Private Partnership, Private Sector Operations Department, regional departments, and Sustainable Development and Climate Change Department		
Consultants	To be selected and engaged by ADB		
	Individual consultants selection (international consultants)	42 person-months	\$561,000.0
	Individual consultants selection (national consultants)	24 person-months	\$141,000.0
Procurement	To be procured by ADB		
	Competitive selection and/or single-source Survey and administrative data and big data	3 contracts	\$ 30,000.0
	Shopping Statistical software	2 contracts	\$ 3,000.0
Disbursement	The TA resources will be disbursed following ADB's <i>Technical Assistance Disbursement Handbook</i> (2010, as amended from time to time).		

ADB = Asian Development Bank, TA = technical assistance.

Source: Asian Development Bank.

17. **Consulting services.** The TA will require consulting services that will be provided by a number of international and national experts, including economists, infrastructure specialists, statisticians, resource persons, and research assistants who have research experience in infrastructure financing. The exact requirements for each type of expertise and the length of input will vary according to the area and scope of research studies. Economists, infrastructure specialists, and statisticians will be hired using individual consultant selection, on output-based, lump sum contracts with a provision for fixed out-of-pocket expenditures. ADB will engage individual consultants in accordance with the ADB Procurement Policy (2017, as amended from time to time) and the associated project administration instructions and/or TA staff instructions.⁹

18. **ADB's procurement.** All TA-financed goods shall be procured in accordance with ADB's Procurement Policy and the associated project administration instructions and/or TA staff instructions. Procurement will be coordinated with the ADB Office of Information Systems and Technology and ADB Office of Administrative Services. Upon TA completion, procured equipment will be turned over or disposed of in accordance with the project administration instruction on administering grant-financed TA projects. Disbursements under the TA will be made in accordance with ADB's *Technical Assistance Disbursement Handbook* (2010, as amended from time to time).

19. **Websites.** The outputs of the TA will be published on the ADB website, on a specific web page to be designed for Asia Infrastructure Insights.

IV. THE PRESIDENT'S DECISION

20. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$1,000,000 on a grant basis for Asia Infrastructure Insights, and hereby reports this action to the Board.

⁹ Terms of Reference for Consultants (accessible from the list of linked documents in Appendix 3).

DESIGN AND MONITORING FRAMEWORK

Impacts the TA is Aligned with^a			
Better-informed policy making on infrastructure and its financing made			
Innovative financing modality for infrastructure mainstreamed			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome Knowledge base and policy dialogue on infrastructure policies in Asia and the Pacific enhanced	By 2022: Asia Infrastructure Insight regularly published (2017 baseline: Not applicable)	Published periodical	Adverse macroeconomic conditions affect the investment climate
Outputs	By 2020: (2017 baseline: Not applicable)		
1. Knowledge products on infrastructure and its financing modality published	1a. At least three studies on strategic infrastructure issues published 1b. At least three studies on infrastructure financing modalities published	1a. Published report 1b. Published report	Unavailability of qualified experts
2. Asia Infrastructure Insights published	2a. At least three workshops on infrastructure held 2b. Asia Infrastructure Insights published digitally and in hard copy	2a. Workshop proceedings 2b. Published reports	
3. Pilot studies and guidelines on measuring infrastructure investments and their financing conducted	3a. Methodological studies and guidelines published 3b. At least three capacity building workshops held 3c. Database on infrastructure investments built 3d. Database on infrastructure financing developed 3e. Database published in public domain (if database is created)	3a. Published working papers and reports 3b. Workshop proceedings 3c. Published database	Governments are not willing to share important data on infrastructure

<p>Key Activities with Milestones</p> <p>1. Knowledge products on infrastructure and its financing modality published</p> <p>1.1 Undertake desk research to take stock of previous and existing studies for infrastructure and its financing modalities (Q4 2017)</p> <p>1.2 Hold inception workshop (Q4 2017)</p> <p>1.3 Conduct studies and technical reports (Q1 2018–Q4 2020)</p> <p>1.4 Prepare the report on infrastructure and its financing modalities in Asia and the Pacific (Q4 2020)</p> <p>2. Asia Infrastructure Insights published</p> <p>2.1 Hold consultation workshops (on an ad hoc basis, Q1 2018–Q4 2020)</p> <p>2.2 Prepare Asia Infrastructure Insights (Q3 2018–Q4 2020)</p> <p>3. Pilot studies and guidelines on measuring infrastructure investments and their financing conducted</p> <p>3.1 Develop preliminary guidelines for using disaggregated gross fixed capital formation data and methodological studies in selected developing member countries (Q1–Q4, 2018)</p> <p>3.2 Prepare regional workshops on measuring infrastructure investments (on an ad hoc basis, Q1 2018–Q4 2019)</p> <p>3.3 Develop final guidelines for measuring infrastructure investments using disaggregated gross fixed capital formation data (Q1 2020)</p> <p>3.4 Develop regional infrastructure and its financing database as feasible (Q4 2020)</p>
<p>Inputs</p> <p>Asian Development Bank: \$1,000,000 Technical Assistance Special Fund (TASF 6)</p> <p>Note: The participating developing member country governments will provide counterpart support in the form of access to official database and database documents, and assistance in data collection and providing counterpart research staff, and other in-kind contributions.</p>
<p>Assumptions for Partner Financing</p> <p>Not applicable</p>

Q = quarter, TA = technical assistance.

^a Project defined.

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Amount
Asian Development Bank^a	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	561.0
ii. National consultants	141.0
b. Out-of-pocket expenditures	
i. International and local travel	90.0
ii. Reports and communications	5.0
2. Printed external publications	10.0
3. Surveys ^b	30.0
4. Goods (statistical software)	3.0
5. Training, seminars, workshops, forum, and conferences ^c	80.0
6. Contingencies	80.0
Total	1,000.0

Note: The technical assistance is estimated to cost \$1,000,000.0, of which contributions from the Asian Development Bank (ADB) are presented in the table above.

^a Financed by ADB's Technical Assistance Special Fund (TASF 6).

^b Includes the purchase of survey and study data.

^c Cost includes travel cost of ADB staff acting as a resource person, venue rental and related facilities, participants, representation, and external resource persons.

Source: Asian Development Bank estimates.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/LinkedDocs/?id=51280-001-TARreport>

1. Terms of Reference for Consultants