

The logo for the Asian Development Bank (ADB), consisting of the letters 'ADB' in a white serif font inside a black square.

Technical Assistance Report

Project Number: 55059-001
Knowledge and Support Technical Assistance (KSTA)
July 2021

Improving Infrastructure Sustainability Through Better Asset Management

This document is being disclosed to the public in accordance with ADB's Access to Information Policy.

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
DMC	–	developing member country
G20	–	Group of 20
ISO	–	International Organization for Standardization
SDG	–	Sustainable Development Goal
TA	–	technical assistance

NOTE

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

Vice-President	Bambang Susantono, Vice President (Knowledge Management and Sustainable Development)
Director General	Bruno Carrasco, Sustainable Development and Climate Change Department (SDCC)
Chief Sector Officer	Robert Guild, Sector Advisory and Service Cluster (SDSC), SDCC
Chief of Sector Group	James Leather, Transport Sector Group (SDSC-TRA), SDCC
Team leader	Michael Anyala, Senior Road Asset Management Specialist, SDSC-TRA, SDCC
Team members	Jelle Beekma, Senior Water Resource Specialist, Water Sector Group, SDCC Kin Wai Chan, Public–Private Partnership Specialist, Public–Private Partnership Thematic Group, Office of the Public–Private Partnership Noel Chavez, Operations Assistant, SDSC-TRA, SDCC Jiahe Chiang, Senior Transport Specialist, SDSC-TRA, SDCC Diana Marie Hernandez-Louis, Transport Officer, SDSC-TRA, SDCC Arndt Husar, Senior Public Management Specialist, Digital Technology for Development Unit, SDCC Sung Su Kim, Financial Sector Specialist (Inclusive Finance), Finance Sector Group, SDCC Robert Duncan McIntosh, Senior Regional Maritime Specialist, SDSC-TRA, SDCC Sunghoon Kris Moon, Urban Development Specialist, Urban Sector Group, SDCC Hanif Rahemtulla, Principal Public Management Specialist, Governance Thematic Group (SDTC-GOV), SDCC David Robinett, Senior Public Management Specialist (State Owned Enterprise Reforms), SDTC-GOV, SDCC David Shelton, Senior Transport Specialist (Road Safety), SDSC-TRA, SDCC Franzella Pinky Villanueva, Associate Operations Analyst, SDSC-TRA, SDCC

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

CONTENTS

	Page
KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE	
I. INTRODUCTION	1
II. ISSUES	1
III. THE TECHNICAL ASSISTANCE	3
A. Impact and Outcome	3
B. Outputs, Methods, and Activities	4
C. Cost and Financing	6
D. Implementation Arrangements	6
IV. THE PRESIDENT'S DECISION	7
APPENDIXES	
1. Design and Monitoring Framework	8
2. Cost Estimates and Financing Plan	10
3. List of Linked Documents	11

KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 55059-001
Project Name	Improving Infrastructure Sustainability Through Better Asset Management	Department/Division SDCC/SDSC-TRA
Nature of Activity Modality	Capacity Development, Policy Advice Regular	Executing Agency Asian Development Bank
Country	REG (All DMCs)	
2. Sector	Subsector(s)	ADB Financing (\$ million)
✓ Transport	Transport policies and institutional development	0.30
	Total	0.30
3. Operational Priorities		Climate Change Information
✓ Accelerating progress in gender equality		GHG Reductions (tons per annum) 0.000
✓ Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability		Climate Change impact on the Project Low
✓ Making cities more livable		ADB Financing
✓ Promoting rural development and food security		Adaptation (\$ million) 0.04
✓ Strengthening governance and institutional capacity		Mitigation (\$ million) 0.03
		Cofinancing
		Adaptation (\$ million) 0.04
		Mitigation (\$ million) 0.02
Sustainable Development Goals		Gender Equity and Mainstreaming
SDG 1.b		Some gender elements (SGE) ✓
SDG 5.c		
SDG 6.1, 6.2, 6.4		
SDG 9.1		
SDG 10.2		
SDG 11.7		
SDG 13.a		
		Poverty Targeting
		General Intervention on Poverty ✓
4. Risk Categorization	Complex	
5. Safeguard Categorization	Safeguard Policy Statement does not apply	
6. Financing		
Modality and Sources	Amount (\$ million)	
ADB	0.30	
Knowledge and Support technical assistance: Technical Assistance Special Fund	0.30	
Cofinancing	0.25	
Water Financing Partnership Facility-NET TF (Full ADB Administration)	0.25	
Counterpart	0.00	
None	0.00	
Total	0.55	
Currency of ADB Financing: US Dollar		

I. INTRODUCTION

1. This proposed knowledge and support technical assistance (TA) will enhance infrastructure asset management operations, including, but not limited to, energy, information and communications technology, transport, water and urban, and irrigation infrastructure in Asian Development Bank (ADB) developing member countries (DMCs) through knowledge and technical support for project preparation and capacity development to DMCs. The TA is aligned with Strategy 2030 operational priorities 2, 3, 4, 5, and 6; the Group of 20 (G20) principles of quality infrastructure investments; relevant Sustainable Development Goals (SDGs); and the Paris Agreement on climate change.¹

2. The TA was endorsed during the corporate priority framework meeting in November 2020 and is included in the 2021 ADB Management-approved results-based workplan of the Sustainable Development and Climate Change Department. The TA involves infrastructure sectors in ADB, as well as the Finance Sector Group, the Governance Thematic Group, the Public–Private Partnership Thematic Group, and other thematic groups.²

II. ISSUES

3. Infrastructure comprises a significant portion of ADB’s investment portfolio. During 2010–2019, lending for the transport sector was \$45.06 billion or 29% of ADB lending; for the energy sector, \$36.32 billion or 24%; for water and urban, \$14.36 billion or 9%; for irrigation, \$4.01 billion or 3%; for information and communications technology, \$1.02 billion or 0.7%; and for other infrastructure investments, \$1.97 billion or 1%. Together, these infrastructure sectors comprise 67% of ADB’s total lending (\$153.68 billion).³ ADB estimates suggest the need for significant investment totaling \$1.7 trillion annually during 2016–2030 to address infrastructure gaps in DMCs, including climate change adaptation and mitigation.⁴

4. Demand for infrastructure investment in Asia and the Pacific is projected to shift towards operating and maintaining existing infrastructure systems by 2030. For example, an estimated 1.1%–2.1% of gross domestic product per year will be needed to maintain new and existing transport infrastructure in DMCs during 2020–2030. This is higher than the estimated investment needs for new infrastructure. Similarly, operation and maintenance investment requirements for water and sanitation assets are estimated to exceed capital investment needs for new infrastructure.⁵

5. A significant development challenge exists to ensure the benefits of infrastructure investments are sustainable. The assets create large and long-term liabilities that challenge the financial, economic, planning, technical, and human resources capacities of DMCs. Almost 60% (by number) of ADB’s total completed transport, water and urban, and energy sovereign operations validated by the Independent Evaluation Department during 2015–2019 were rated

¹ ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific*. Manila; and Government of Japan, Ministry of Finance. 2019. [G20 Principles of Quality Infrastructure Investments](#). Tokyo.

² The TA first appeared in the business opportunities section of ADB’s website on 22 June 2021.

³ Other infrastructure includes the following subsectors: rural water supply services, rural sanitation, rural solid waste management, rural market infrastructure, rural water supply policy, and institutional and capacity development. Based on ADB 2010–2020 Commitments database per sector.

⁴ ADB. 2017. [Meeting Asia’s infrastructure Needs](#). Manila.

⁵ World Bank Group. 2019. [Beyond the Gap: How Countries can Afford the Infrastructure They Need while Protecting the Planet](#). Washington, DC.

less than likely sustainable.⁶ By sector, 47% of transport, 42% of water and urban, and 18% of energy sectors sovereign operations were rated *less than likely sustainable*.⁷ Strengthening asset management capabilities of DMCs is essential to (i) improve sustainability of infrastructure investments, and (ii) help many DMCs transition to managing and operating infrastructure systems in a more effective, efficient, inclusive, and sustainable manner.⁸

6. Fundamentals for good asset management are weak or lacking in many DMCs, including:
 - (i) inadequate leadership and commitment by senior decision makers to improving asset management;
 - (ii) siloed institutional structures and weak governance, making optimizing investment plans, improving efficiencies, and maximizing value a challenging proposition;
 - (iii) levels of service, standards, processes, skilled personnel, and tools necessary to ensure alignment between national and/or corporate objectives with technical and financial decisions, plans and operational activities are not properly implemented or not in place;
 - (iv) lack of data of appropriate quality and detail on asset inventory, demand, usage, asset performance, and for supporting system level planning and budgeting, multi-year works programming, and project level design, implementation, and monitoring; and
 - (v) availability of funding not ensured over multiple years based on estimated budget needs for asset portfolios and/or networks.⁹

7. Other needs for strengthening infrastructure asset management in DMCs relate to:
 - (i) improving state asset management at the levels of the operator and local, provincial, and national governments, including developing and improving two-sided balance sheets at each level that can account for infrastructure investment, depreciation, and maintenance;
 - (ii) effectively managing and replacing the increasing stock of aging infrastructure;
 - (iii) adapting to and mitigating climate change;
 - (iv) ensuring consistency in service levels for cross-border infrastructure for improved regional cooperation and integration;
 - (v) addressing the growing infrastructure maintenance and operation needs in a manner that will lead to sustained improvement of service levels, including by enabling increased ADB use of programmatic assistance in holistically addressing asset management issues in DMCs in a more impactful manner, and increasing private sector investments for asset management; and
 - (vi) coordinating the development, maintenance, and management of infrastructure, including through implementation of good policies such as the “dig once” policy,

⁶ Sustainability in this context refers to the likelihood that institutional, financial, and other resources are sufficient to sustain a project’s outcome over its economic life in an environmentally and socially sustainable way. A rating of *less than likely sustainable* applies where positive effects are below expectations and there are limited measures to mitigate negative impacts. ADB. 2016. Independent Evaluation Department. *Guidelines for Evaluation of Public Sector Operations*. Manila.

⁷ ADB Strategy, Policy, and Partnerships Department. 2021. *Project Sustainability: Risk Diagnostics and Management Framework*. Manila. Unpublished.

⁸ Asset management is defined as the systematic and coordinated activities and practices through which an organization optimally manages its assets, and their associated performance, risks, and expenditures over the lifecycle for the purpose of achieving its organizational strategic plan. Based on ISO 55000.

⁹ Estimates by ADB suggest a \$1 saved in differing road maintenance increases road user costs by \$2 to \$3. ADB. 2003. *Road Fund and Road Maintenance: An Asian Perspective*. Manila; and ADB. 2020. Independent Evaluation Department. 2020. [Sector Wide Evaluation: ADB Support for Transport](#). Manila.

which aims to improve digital assets across sectors, and effectively managing these assets including their interdependencies.¹⁰

8. Improved asset management maturity in DMCs will help achieve SDGs by:
 - (i) providing a transparent framework based on international guidelines such as International Organization for Standardization (ISO) 55000 that aligns the day-to-day operational activities for infrastructure with national and corporate policies, thereby enabling realization of infrastructure investments that deliver on policies targeting poverty eradication and gender equality (SDG 1.b, 5.c);
 - (ii) ensuring a good level of service from infrastructure, including improved access, connectivity, and quality of infrastructure services (SDG 6.1, 6.2, 6.4);
 - (iii) improving the quality, resilience, and sustainability of infrastructure systems (SDG 9.1); and
 - (iv) promoting quality infrastructure investments that are green, sustainable, and inclusive (SDG 11.7).

9. The TA activities are aligned with the G20 principles of quality infrastructure investments, including:
 - (i) maximizing the positive impact of infrastructure investments by promoting use of asset management principles to inform prioritization of investment options and strategies that will maximize benefits;
 - (ii) developing economic efficiency of infrastructure investments in view of lifecycle costs by promoting use of cost–benefit analysis during project preparation;
 - (iii) integrating environmental considerations, including support for implementing the Paris Agreement on climate change, and using asset management frameworks to align infrastructure operational activities to DMCs’ nationally determined contributions;
 - (iv) building infrastructure resilience to potential impacts of climate change and other hazards;
 - (v) integrating social considerations by improving access to social services and improving infrastructure safety; and
 - (vi) strengthening infrastructure governance processes by tackling corruption in infrastructure procurement.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

10. The TA is aligned with the following impact: Quality infrastructure investments that are green, sustainable, resilient, and inclusive promoted.¹¹ The TA will have the following outcome: Infrastructure asset management in selected DMCs improved.¹² This will be achieved through two outputs: (i) identification and preparation of asset management initiatives in DMCs supported, and (ii) knowledge and capacity of DMCs in asset management improved.

11. The TA will strengthen the sustainability of infrastructure projects in participating DMCs by providing technical support to operation departments to assist policy dialogue with DMC

¹⁰ ADB. 2021. [President's Planning Directions for 2021 and Preparation of Work Program and Budget Framework, 2022–2024](#). Unpublished.

¹¹ ADB. 2018. [Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific](#). Manila.

¹² The design and monitoring framework is in Appendix 1.

counterparts, identify asset management initiatives for future assistance, include asset management in country partnership strategies, and support project preparation to ensure requirements for project sustainability are adequately embedded in projects from the onset.

12. With demand from DMCs for maintenance and operation of infrastructure systems projected to exceed needs for new construction by 2030, the TA will help participating DMCs transition to managing their infrastructure systems more effectively based on good asset management approaches. The TA will develop and disseminate selected knowledge products addressing priority areas, including, but not limited to, strengthening infrastructure financing and cost recovery; improving infrastructure governance; and embedding lifecycle planning principles in the planning, design, construction, maintenance and operations of infrastructure. Capacity building programs will include sessions targeting key stakeholders and senior decision makers to engender support for asset management at the highest level in DMCs.

13. The TA will support efforts towards accelerating digitalization of infrastructure asset data and leveraging digital tools to support evidence-based decisions for planning, development, maintenance, and operations of infrastructure systems. The TA will review barriers and propose options for mainstreaming digital technologies such as data collection via connected sensors (Internet of Things); earth observation or portable devices; cloud-based data analytics; and artificial intelligence for real-time performance monitoring, sensing of issues, business process automation, and virtualization (digital twin).

14. ADB estimates indicate a total of \$1.7 trillion is required annually up to 2030 to address the infrastructure gap, including for climate change adaptation and mitigation. Building on infrastructure asset valuation knowledge work by ADB, the TA will promote lifecycle accounting at all levels (operator, local, regional or provincial, and national government) in selected sectors and DMCs through capacity building programs.¹³ If implemented correctly by DMCs, this will engender transparency in infrastructure investment and management, lead to improved infrastructure governance, help attract much needed private capital to tackle the significant infrastructure gap, and develop quality infrastructure that is green, sustainable, resilient, and inclusive.

15. The TA will work with ongoing asset management initiatives in the operations departments and the Sustainable Development and Climate Change Department to glean lessons to be shared across operations departments and develop a body of knowledge and best practices. This will result in guidance notes and other materials to support knowledge management and capacity building for DMCs.

B. Outputs, Methods, and Activities

16. **Output 1: Identification and preparation of asset management initiatives in developing member countries supported.** The TA will provide technical support for identifying priority opportunities for improving asset management in selected DMCs and including asset management in at least two country partnership strategies. The TA will provide asset management expert inputs to at least four projects during the project preparation phase to support the design of asset management requirements and embed quality infrastructure investment principles in projects. The TA will also support the design of integrated asset management system in at least two DMCs.

¹³ ADB. 2020. *Guidance Note on State-Owned Enterprise Reform in Sovereign Projects and Programs*. Manila.

17. The TA will assess asset management maturity in selected DMCs to identify and prioritize potential asset management improvement opportunities. The assessment framework shall be adapted from international asset management frameworks, for example, as described in ISO 55000 series of asset management standards and the International Infrastructure Management Manual.¹⁴ The TA will also provide technical support for dialogue with DMCs towards developing potential future asset management project pipelines, including on the private sector's role in addressing asset management.

18. **Output 2: Knowledge and capacity of developing member countries in asset management improved.** The TA will review good practices within ADB and internationally, and prepare a road map for strengthening asset management capacity in ADB operations and in selected DMCs. Guided by the priorities set out in the road map(s), the TA will develop and collate asset management knowledge products and capacity building materials for DMCs. The TA will develop at least three cross-sector infrastructure asset management knowledge products, with at least one including gender-related aspects, one considering regional cooperation and integration, and one including innovative financing options. At least three cross-sector asset management capacity building programs with at least thirty participants per training program will be implemented.

19. ADB will use knowledge products and capacity building initiatives to embed into DMC institutions the principles, processes, strategies, and tools that are fundamental for good asset management including: (i) the G20 principles of quality infrastructure investments; (ii) strengthening sovereign and non-sovereign financing of infrastructure operation and maintenance, including recommending specific actions that will engender wider use of performance-based asset management contracts for delivering improved level of service; and (iii) promoting application of digital technologies, such as connected sensors, earth observations, smart devices, cloud-computing, geographic information systems, artificial intelligence, and virtual reality technologies for improved asset management.

20. Capacity building programs will be mostly delivered virtually and open to participation by representatives from all DMCs; limited face to face interaction in country training programs may be provided where possible. The TA will promote asset management knowledge partnerships with centers of excellence, multilateral development banks, other partners, and subregional groups such as the Association of Southeast Asian Nations, the Central Asia Regional Economic Cooperation, the Greater Mekong Subregion, and the South Asia Subregional Economic Cooperation.

21. This TA will support focus areas of Strategy 2030 and selected operational priorities. The main direction of activities will be supporting ADB operations and DMCs through policy dialogue, including asset management initiatives in country partnership strategies, developing the pipeline for infrastructure asset management assistance, and improving asset management knowledge and capacity. ADB's value addition includes: (i) drawing on cross-sector and thematic expertise under a one ADB approach to learn lessons, share knowledge, and provide asset management technical support to DMCs; (ii) developing and disseminating relevant and practical knowledge products; (iii) supporting mainstreaming of the G20 principles of quality infrastructure investments in DMCs; and (iv) supporting accelerating digitalization of infrastructure in the context of infrastructure asset management.

¹⁴ ISO. 2014. [ISO 55000 Series of Asset Management Standards](#). Geneva.

C. Cost and Financing

22. The TA is estimated to cost \$550,000, of which (i) \$300,000 will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF 7) and (ii) \$250,000 will be financed on a grant basis by the Netherlands Trust Fund under the Water Financing Partnership Facility and administered by ADB. Due to geographic restrictions under the Netherlands Trust Fund, this is ring-fenced for water-related asset management in Bangladesh, Indonesia, and Viet Nam. The ADB TASF 7 component will focus on Asian Development Fund countries.¹⁵ The key expenditure items are listed in Appendix 2.

D. Implementation Arrangements

23. ADB will administer the TA and will be the executing agency. The Transport Sector Group, under the Sector Advisory Service Cluster of ADB's Sustainable Development and Climate Change Department, will implement the TA and be accountable for the outputs. It will carry out TA administration and supervision, implementation oversight, and communication with consultants and stakeholders, in close coordination with operations departments and other sector and thematic groups.

24. Under the TA, experienced international and national individuals and firm will be recruited to provide high-quality infrastructure asset management technical services through a quality- and cost-based selection. Such services will: (i) support operation department activities, including asset management policy dialogue with a focus on DMCs, and assist project teams with expert support during project or program preparation based on specific asset management needs; and (ii) support knowledge and capacity building, including developing a pipeline of asset management assistance and selected knowledge products. The Netherlands Trust Fund will support water-related asset management in Bangladesh, Indonesia, and Viet Nam. Selection of DMCs to be supported through TASF 7 will be closely coordinated with operations departments and resident missions. A coordination group for selecting DMCs to be supported shall include sector and thematic groups participating in the TA. The criteria for prioritizing support will include: (i) the likelihood that support will lead to including asset management in country partnership strategy; (ii) inclusion of infrastructure programs or projects to be supported in ADB project pipeline; (iii) alignment of support with one or more Quality Infrastructure Investment Initiative principles and/or asset management fundamentals according to ISO 55000; and (iv) the support's contribution to accelerating digitalization of infrastructure.

25. **Cofinancier requirements.** The Netherlands Trust Fund under the Water Financing Partnership requires submission of a short progress report as input to annual report to donors.

26. Implementation arrangements are summarized in the table.

Implementation Arrangements

Aspects	Arrangements		
Indicative implementation period	July 2021–December 2024		
Executing agency	ADB		
Consultants	To be selected and engaged by ADB		
	Firm:	Infrastructure asset management support, knowledge development,	\$447,000

¹⁵ ADB. 2019. [Operational Manual Policies and Procedures](#). Manila.

Aspects	Arrangements		
	Quality- and cost-based selection	and capacity building (29 person-months, international and national team members)	
	Individual: Competitive selection	International infrastructure asset management specialist (2 person-months)	\$40,000
Disbursement	Disbursement of TA resources will follow ADB's <i>Technical Assistance Disbursement Handbook</i> (2020, as amended from time to time).		
Asset turnover or disposal arrangement upon TA completion	No fixed assets will be procured under the TA.		

ADB = Asian Development Bank, TA = technical assistance.

Sources: ADB.

27. **Consulting services.** ADB will engage the consultants following the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or staff instructions.¹⁶

28. **Social media and websites.** The proposed TA will use participating sector groups' and thematic groups' communication, and dissemination channels (websites, social media, and networking) and utilize ADB's knowledge dissemination channels such as the DevAsia and Asian Development Blogs to demonstrate the TA activities and identify experts.¹⁷

IV. THE PRESIDENT'S DECISION

29. The President, acting under the authority delegated by the Board, has approved (i) the Asian Development Bank (ADB) administering a portion of technical assistance not exceeding the equivalent of \$250,000 to be financed on a grant basis by the Netherlands Trust Fund under the Water Financing Partnership Facility; and (ii) ADB providing the balance not exceeding the equivalent of \$300,000 on a grant basis for Improving Infrastructure Sustainability through Better Asset Management, and hereby reports this action to the Board.

¹⁶ Terms of Reference for Consultants (accessible from the list of linked documents in Appendix 3).

¹⁷ [Development Asia](#), [Asian Development Blog](#).

DESIGN AND MONITORING FRAMEWORK

Impact the TA is Aligned with			
Quality infrastructure investments that are green, sustainable, resilient, and inclusive promoted (ADB Strategy 2030) ^a			
Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
Outcome Infrastructure asset management in selected DMCs improved	By 2024 a. At least two approved CPSs included asset management (2020 baseline: 0) b. At least 20 approved ADB infrastructure projects concept papers included components for asset management (2020 baseline: 0) c. At least five TA beneficiary DMCs achieve improvement in asset management maturity rating ^b (2020 Baseline: 0)	a. CPSs b. Project concept papers c. Biennial ADB asset management maturity assessment of selected infrastructure agencies in DMCs ^c	R: Some DMCs take longer than expected to change practices and adopt and improve asset management processes and methods.
Outputs 1. Identification and preparation of asset management initiatives in DMCs supported 2. Knowledge and capacity of DMCs in asset management improved	By 2024 1a. At least four projects designed with asset management expert inputs (2020 Baseline: 0) (OP 6.2.3) 1b. At least two DMCs supported in introducing integrated asset management system (2020 Baseline:0) (OP 5.3.4) By 2024 2a. At least 30 participants (with 30% women) from each of at least three cross-sector asset management training programs confirmed increased understanding (2020 baseline: 0) (OP 2.3.1; OP 3.1.2; OP 4.3.2; OP 6.2.3) 2b. At least three cross-sector infrastructure asset management knowledge products, with at least one including gender-related aspects, one including RCI consideration, and one including innovative financing options, prepared and disseminated (2020 baseline: 0)	1a. Infrastructure sector groups project databases and quarterly consultant's progress reports 1b. Quarterly consultant's progress reports 2a. Quarterly consultant's progress reports and participant training registers, post-training surveys 2b. Published knowledge products	R: Uncertainty related to COVID-19 pandemic restricts DMCs' ability to support TA activities. R: Changes in governments lead to delay in TA implementation.

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
<p>Key Activities with Milestones</p> <p>1. Development and preparation of asset management initiatives in DMCs supported</p> <p>1.1 Select DMC and projects to be supported (Q3–Q4 2021).</p> <p>1.2 Assess asset management maturity in selected DMCs, review implementation of asset management in ADB operations, identify knowledge and capacity gaps and priorities (2021–2022).</p> <p>1.3 Consult with operations departments to identify and define the scope of the required support for developing asset management initiatives and supporting project preparation (2021–2024).</p> <p>1.4 Conduct dialogue with DMCs on strengthening asset management and developing new asset management projects and/or programs (2021–2024).</p> <p>1.5 Deliver project and/or program preparation support based on needs of operations department teams (2021–2024).</p> <p>1.6 Assess asset management maturity in participating DMCs (2024).</p> <p>2. Knowledge and capacity of DMCs in asset management improved</p> <p>2.1 Develop roadmap for embedding asset management knowledge in ADB and DMCs (2021).</p> <p>2.2 Develop and/or collate knowledge and capacity building materials (2021 and 2022).</p> <p>2.3 Identify potential asset management knowledge partners and develop knowledge and capacity building partnerships (Q4 2021–Q1 2022)</p> <p>2.4 Implement capacity building programs (2022–2024)</p> <p>2.5 Develop knowledge products (2022–2024)</p>			
<p>Inputs</p> <p>ADB: \$300,000</p> <p>Netherlands Trust Fund under the Water Financing Partnership Facility: \$250,000</p>			

ADB = Asian Development Bank, COVID-19 = coronavirus disease, CPS = country partnership strategy, DMC = developing member countries, OP = operational priority, R = risk, Q = quarter, RCI = regional cooperation and integration, TA = technical assistance.

^a Asian Development Bank. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific*. Manila.

^b Asset management maturity assessment is a measure of the capability of an organization to effectively implement asset management (see footnote 11 for definition of asset management). A standard assessment framework adapted from the International Infrastructure Asset Management Manual will be used.

^c Initial assessment will be carried out in 2021.

Contribution to Strategy 2030 Operational Priorities:

The expected values and methodological details for all OP indicators to which this TA will contribute results are detailed in Contribution to Strategy 2030 Operational Priorities (accessible from the list of linked documents in Appendix 3).

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Amount	
	ADB^a	Netherlands Trust Fund under the Water Financing Partnership Facility^b
A. Consultants		
1. Remuneration and per diem		
a. International consultants	180.0	195.0
b. National consultants	27.0	
2. Out-of-pocket expenditures		
a. International and local travel	10.0	10.0
b. Surveys	10.0	
c. Training, seminars, and conferences ^c	15.0	30.0
d. Reports and communications	5.0	
e. Miscellaneous administration and support costs	5.0	
B. Training, seminars, and conferences ^c		
1. Facilitators	10.0	
2. Venue rental and related facilities	8.0	
3. Participants	10.0	
4. Representation	5.0	
C. Studies, Surveys, and Reports	5.0	
D. Miscellaneous Administration and Support Costs	5.0	
E. Contingencies	5.0	15.0
Total	300.0	250.0

ADB = Asian Development Bank.

Note: The TA is estimated to cost \$550,000, of which contributions from ADB and the Netherlands Trust Fund under the Water Financing Partnership Facility are presented in the table.

^a Financed by ADB's Technical Assistance Special Fund (TASF 7).

^b Administered by ADB.

^c Includes honorarium and travel cost for resource persons and facilitators, participants' travel cost, and ADB staff travel costs as resource persons and/or speakers, logistical costs and representation expenses to cover alcoholic and nonalcoholic beverages, conference materials, and conference-related service providers.

Source: ADB estimates.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/LinkedDocs/?id=55059-001-TARreport>

1. Terms of Reference for Consultants
2. Contribution to Strategy 2030 Operational Priorities