



Report and Recommendation of the President to the Board of Directors

Project Number: 46362-002
February 2016

Proposed Loan Republic of the Philippines: Angat Water Transmission Improvement Project

Distribution of this document is restricted until it has been approved by the Board of Directors. Following such approval, ADB will disclose the document to the public in accordance with ADB's Public Communications Policy 2011.

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 1 February 2016)

Currency unit – peso (P)

Php1.00 = \$.0208

\$1.00 = P48.00

ABBREVIATIONS

ADB	–	Asian Development Bank
BAC	–	Bid and Awards Committee
COA	–	Commission on Audit
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
IEE	–	initial environmental examination
IPP	–	indigenous peoples plan
LIBOR	–	London interbank offered rate
MWSS	–	Metropolitan Waterworks and Sewerage System
PPP	–	public–private partnership

NOTE

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

Vice-President	S. Groff, Operations 2
Director General	J. Nugent, Southeast Asia Department (SERD)
Director	T. Gallego-Lizon, Urban Development and Water Division, SERD
Team leader	P. van Klaveren, Senior Urban Development Specialist, SERD
Team members	L. Adams, Social Development Specialist, SERD M. Ovenden, Social Development Specialist (Resettlement), SERD S. Tansengco-Shapero, Senior Finance Specialist, SERD P. Rhee, Counsel, Office of the General Counsel
Peer reviewers	J. Huang, Principal Urban Development Specialist, South Asia Department A. Woodruff, Urban Development Specialist, Pacific Department

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
PROJECT AT A GLANCE	
I. THE PROPOSAL	1
II. THE PROJECT	1
A. Rationale	1
B. Impact and Outcome	4
C. Outputs	4
D. Investment and Financing Plans	4
E. Implementation Arrangements	5
III. DUE DILIGENCE	6
A. Technical	6
B. Economic and Financial	7
C. Governance	8
D. Poverty and Social	8
E. Safeguards	9
F. Risks and Mitigating Measures	9
IV. ASSURANCES	10
V. RECOMMENDATION	10
APPENDIXES	
1. Design and Monitoring Framework	11
2. List of Linked Documents	13

PROJECT AT A GLANCE

1. Basic Data		Project Number: 46362-002	
Project Name	Angat Water Transmission Improvement Project	Department /Division	SERD/SEUW
Country	Philippines	Executing Agency	Metropolitan Waterworks and Sewerage System
Borrower	Metropolitan Waterworks and Sewerage System		
2. Sector	Subsector(s)	ADB Financing (\$ million)	
✓ Water and other urban infrastructure and services	Urban water supply		123.30
		Total	123.30
3. Strategic Agenda	Subcomponents	Climate Change Information	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Climate Change impact on the Project	High
Environmentally sustainable growth (ESG)	Urban environmental improvement		
4. Drivers of Change	Components	Gender Equity and Mainstreaming	
Governance and capacity development (GCD)	Institutional development	Some gender elements (SGE)	✓
Private sector development (PSD)	Public sector goods and services essential for private sector development		
5. Poverty Targeting		Location Impact	
Project directly targets poverty	Yes	Urban	High
MDG-targeting (TI-M)	MDG7		
6. Risk Categorization:	Low		
7. Safeguard Categorization	Environment: B Involuntary Resettlement: C Indigenous Peoples: B		
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		123.30	
Sovereign Project loan: Ordinary capital resources		123.30	
Cofinancing		0.00	
None		0.00	
Counterpart		10.70	
Government		10.70	
Total		134.00	
9. Effective Development Cooperation			
Use of country procurement systems		No	
Use of country public financial management systems		Yes	

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the Metropolitan Waterworks and Sewerage System (MWSS) for the Angat Water Transmission Improvement Project.¹

2. The project supports the rehabilitation of Angat transmission system, with the objective to provide sustained and secured water supply to Metro Manila. The project preparatory technical assistance prioritized constructing a new upstream tunnel to further improve water transmission and secure future water supply for Metro Manila's 15 million inhabitants.² The project directly supports the government's sector development goal by providing access to safe, adequate and sustainable water supply to all by 2025.³

II. THE PROJECT

A. Rationale

3. More than 95% of the water supply for Metro Manila comes from a single source: the Umiray–Angat–Ipo, or Angat system. Water from the Angat reservoir is conveyed through three parallel tunnels followed by six parallel aqueducts, to water treatment plants in Metro Manila.⁴ The treated water is then distributed to households, businesses, and industries in Metro Manila, and parts of Cavite and Rizal provinces. The transmission's tunnel system is up to 75 years old, in poor condition, and not in compliance with current structural and seismic requirements. These factors could lead to serious interruptions of Metro Manila's water supply.

4. The proposed project will construct the urgently required fourth parallel tunnel. This new tunnel will not increase system capacity, but it will enable the rehabilitation or decommissioning of the upstream tunnels and downstream aqueducts.⁵

5. The proposed project aims to (i) help restore the full design capacity of the Angat systems and thus ensure the sustainable provision of the water supply distribution system, and (ii) mitigate the risk of a total loss of water supply to Metro Manila and portions of Cavite and Rizal provinces. Both objectives are essential for the stable economic growth of Metro Manila and the Philippines.⁶ The government has asked the Asian Development Bank (ADB) to finance this investment.

6. **Restoring full system capacity.** The MWSS, a government-owned corporation, provides water supply and sanitation services to Metro Manila and portions of Cavite and Rizal provinces. In 1997, it awarded two concession contracts to private firms for water distribution and wastewater management. The MWSS retained responsibility for raw water supply.

¹ The design and monitoring framework is in Appendix 1.

² ADB. 2012. *Technical Assistance to the Philippines for Angat Water Transmission Improvement Project*. Manila. (TA 8169-PHI, approved on 13 September 2012).

³ Government of the Philippines, National Economic and Development Authority. 2010. *The Philippine Water Supply Sector Roadmap, 2nd Edition*. Manila.

⁴ The Angat reservoir is a multipurpose dam for water supply, irrigation, and hydropower generation. It is located 35 kilometers northeast of Metro Manila. The tunnel and aqueduct system comprises six underground pipes with lengths of up to 15 kilometers and diameters of 2.0–3.7 meters. The oldest pipes were built in 1939, the newest were constructed in 2012.

⁵ The MWSS formally requested ADB assistance with the rehabilitation of the aqueducts. The project preparatory technical assistance is tentatively scheduled for 2016 approval.

⁶ The National Capital Region accounts for 32% of the gross domestic product of the Philippines.

Privatizing the distribution services significantly improved the delivery of water supply services. The serviced population has doubled since 1997, with 90% of the population having 24-hour access. The level of nonrevenue water has been cut from more than 60% in 2002 to 10%–40% in 2015.

7. With the concessionaries' expanding coverage, demand for water has increased to about 40 cubic meters per second (3.4 million cubic meters per day). Until now, the water gained through the concessionaires' nonrevenue water reduction programs could meet the increased demand. Given that these programs will achieve their optimal results by 2018, raw water supply must be expanded to cover future increased demand.⁷ The MWSS plans to develop another significant water source through the New Centennial Water Source Project.⁸ However, this will only be operational after 2021.⁹ There is therefore an urgent need to restore the Angat system to its full design capacity of 46 cubic meters per second to ensure that future demand can be met.

8. **Loss of water supply.** The chance of a serious breakdown of Metro Manila's only water source is increasing.¹⁰ This would lead to losses to the economy of Metro Manila and the Philippines, as well as potential health hazards. The poor urban population would suffer most because of their limited capacity to tap alternative water sources. Recognizing the Angat system's critical importance to uninterrupted water supply to Metro Manila, the MWSS prioritized the construction of a new aqueduct, which was completed in 2012.¹¹ The full capacity of this aqueduct can only be achieved if a new tunnel is constructed to feed raw water into it. This will also substantially reduce the risk of full or partial water supply disruption.

9. **Strategic focus.** One of the main strategies in the Philippine Development Plan, 2011–2016 is attaining high, sustained economic growth by ensuring a stable macroeconomic environment and investing in infrastructure. ADB's country partnership strategy, 2011–2016 for the Philippines supports the plan by reducing environmental degradation and vulnerability to disasters, and by developing sustainable infrastructure in urban areas.¹²

10. ADB's Philippine urban sector assessment, strategy, and road map lists the acute shortage of potable water as the primary urban challenge, while the water supply and sanitation sector assessment, strategy, and road map states that weak planning and monitoring, and the lack of investments are core constraints to the sector's development. These constraints also apply to the MWSS. The proposed project will support ADB's two core areas: (i) urban competitiveness, by focusing on economic infrastructure,¹³ and (ii) sustainable communities, by focusing on environmental infrastructure.¹⁴ ADB's Water Operational Plan, 2011–2020

⁷ Further nonrevenue water reduction is not cost effective: the incremental benefits will not compensate for the incremental costs.

⁸ System of dams, reservoirs, and transmission lines, located 40 kilometers east of Metro Manila.

⁹ The Angat system is therefore critical to ensuring that the demand projected for 2021 can be supplied. After 2021, additional sources, such as the first phase of the New Centennial Water Source Project and the Kaliwa Low dam, should be operational to cover the demand projection until 2027.

¹⁰ Experts estimate the probability of a partial breakdown at 20%, with a minimum capacity loss of one-third of the total capacity and a restoration period of 2 months.

¹¹ NJS Consulting Engineers. 2005. *Angat Water Utilization and Aqueduct Improvement Project Phase 2 (Final Report)*. Manila.

¹² ADB. 2011. *Country Partnership Strategy: Republic of the Philippines, 2011–2016*. Manila.

¹³ Economic infrastructure comprises investments that generate revenue.

¹⁴ Environmental infrastructure comprises infrastructure and services that have a positive impact on the environment and human health and welfare, such as water supply and sanitation.

recognizes the need to foster water conservation and increase system efficiencies.¹⁵ The project supports the proposed solution of reducing water loss and minimizing inefficient use of water.

11. The project directly supports the government's sector development plan by providing bulk water supply to priority areas, including Metro Manila.¹⁶

12. **Continued ADB support to private sector development and good governance.** Since 1974, ADB has provided loans to finance 10 projects for the Metro Manila water system, including three for the Angat water supply system.¹⁷ ADB's special evaluation study concluded that ADB's support had strengthened the MWSS' public sector role and public-private partnership (PPP) agreements in water distribution.¹⁸ The study also noted that given the long-term partnership with ADB and the widening demand-supply gap, ADB should assist the MWSS further to improve Metro Manila's raw water supply. The proposed project will (i) strengthen the capacity of the MWSS to fulfill its public sector responsibility of ensuring and securing the availability of raw water to the concessionaries, and (ii) continue ADB's contribution to developing distribution services through the current PPPs.

13. **Previous ADB involvement and lessons learned.** ADB's country assessment performance evaluation concludes that ADB assistance has contributed to innovative solutions for providing urban services, but that project design should (i) cover the wide range of contextual factors such as the multiple agencies involved, and (ii) assess the institutional capacity of the executing agency before committing to new projects.¹⁹ The project addresses this through a single-sector and single-agency approach, and by supporting the MWSS' institutional and management capacity during contracting and supervision of the works.

14. **Special features.** The project contributes to managing the disaster risk of Metro Manila's water supply by financing structural measures to limit the adverse impact of natural and technological hazards, and environmental degradation. Seismic and structural assessments were carried out and bid documents were prepared incorporating the technical findings in the project's bid documents.²⁰

¹⁵ ADB. 2011. *Water Operational Plan, 2011–2020*. Manila.

¹⁶ Government of the Philippines, National Economic and Development Authority. 2010. *The Philippine Water Supply Sector Roadmap, 2nd Edition*. Manila. Outcome 4: Timely provision of adequate water supply facilities from source development to distribution.

¹⁷ ADB. 1989. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of the Philippines for Angat Water Supply Optimization Project*. Manila (Loan 986-PHI, approved on 14 November 1989 for \$130 million); ADB. 1992. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of the Philippines for Umiray-Angat Transbasin Technical Assistance*. Manila (Loan 1217-PHI, approved on December 1992 for \$2.6 million); and ADB. 1995. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of the Philippines for the Umiray-Angat Transbasin Project*. Manila (Loan 1379-PHI, approved on 21 September 1995 for \$92 million).

¹⁸ ADB. 2008. *Special Evaluation Study: ADB Assistance to Water Supply Services in Metro Manila*. Manila.

¹⁹ ADB. 2008. *Country Assistance Program Evaluation: Philippines—Increasing Strategic Focus for Better Results*. Manila.

²⁰ A full set of bid documents has been prepared following international competitive bidding procedure using ADB's Standard Bidding Documents for Procurement of Plant, Design, Supply and Install (two-stage bidding) and Conditions of Contract for Plant and Design-Build, first edition 1999 prepared by the International Federation of Consulting Engineers.

B. Impact and Outcome

15. The impact of the project is aligned with the government's sector development goal of providing access to safe, adequate and sustainable water supply to all by 2025. The outcome is reliable and adequate water supply by the tunnel system.

C. Outputs

16. **New tunnel constructed.** The new tunnel is about 6.3 kilometers long and has a finished, internal span of about 4 meters. The works consist of (i) an intake structure at Ipo reservoir, (ii) tunnel works, (iii) a new transition basin at Bigte, (iv) connection of the new transition basin at Bigte to the existing transition basin number 3 at Bigte, and (v) modifications to the existing transition basin number 3 at Bigte.

17. **Capacity building support provided.** This consists of (i) hand on training of MWSS' project management office staff to improve skills in contract management and contract supervision; and (ii) capacity building on gender awareness promotion and training, and implementation of the communication strategy with regard to livelihood opportunities and awareness of health-related risks.

D. Investment and Financing Plans

18. The project is estimated to cost \$134.0 million which includes taxes, duties, and physical and price contingencies (Table 1).

Table 1: Project Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Construction of a new tunnel	98.4
2. Capacity building support	6.0
Subtotal (A)	104.4
B. Contingencies^c	22.0
C. Financing Charges During Implementation^d	7.6
Total (A+B+C)	134.0

^a Includes taxes and duties of \$10.7 million to be financed from government resources through exemption.

^b In mid-2015 prices.

^c Physical contingencies computed at 15% for civil works. Price contingencies computed at 4.55% on foreign exchange costs and 8.49% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for the Asian Development Bank (ADB) loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.50%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

19. The Government of the Philippines has requested a loan of \$123.3 million from ADB's ordinary capital resources to help finance the project. The loan will have a 25-year term, including a grace period of 6.5 years, straight line repayment method, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility,²¹ a commitment charge of 0.15% per year (the interest and other charges during construction to be capitalized in the loan), and such other terms and conditions set forth in the

²¹ The interest includes a maturity premium of 10 basis points. This is based on the above loan terms and the government's choice of repayment option and dates.

draft loan and guarantee agreements. Based on this, the average loan maturity is 16 years and the maturity premium payable to ADB is 0.10% per annum. The loan will be guaranteed by the Republic of the Philippines. The concession agreement provides for the concessionaires to include in their concession fees due to the MWSS and the MWSS' debt service obligations, including for this loan. This is passed on to Metro Manila consumers. Table 2 outlines the financing plan.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank	0.0	0.0
Ordinary capital resources (loan) ^a	123.3	92.0
Government ^b	10.7	8.0
Total	134.0	100.0

^a ADB loan may finance local transportation and insurance costs.

^b The government will finance taxes and duties.

Source: Asian Development Bank estimates.

E. Implementation Arrangements

20. The MWSS is the executing agency. The project will be implemented by a team of MWSS staff, headed by a project manager and under the direct responsibility of the deputy administrator for engineering and operation. The Department of Finance and the National Economic and Development Authority oversee MWSS' operations as part of their regular oversight responsibilities on government-owned and controlled corporations.

21. The project manager and members of the team will coordinate with the concessionaires, the common purpose facility, the consultants' team, the Department of Environment and Natural Resources, and the National Commission on Indigenous Peoples. The MWSS will recruit a consulting firm to help implement the project. The firm will serve as engineer following the definition of the International Federation of Consulting Engineers,²² with three main tasks: site supervision, contract management, and capacity development. Table 3 summarizes implementation arrangements and the project administration manual details them.²³

Table 3: Implementation Arrangements

Aspects	Arrangements
Implementation period	June 2016–December 2021
Estimated completion date	31 December 2021 (physical completion); 30 June 2022 (loan closing)
Management	
(i) Oversight body	Department of Finance, National Economic and Development Authority, and Governance Commission for Government Owned or Controlled Corporations
(ii) Executing agency	Metropolitan Waterworks and Sewerage System (MWSS)
(iii) Key implementing agencies	MWSS Deputy Administrator for Engineering and Operation
(iv) Implementation unit	MWSS, Project Management Office 16 staff
Operation and Maintenance	The private concessionaires through the common purpose facility
Procurement	International competitive bidding 1 contract \$98.4 million
Consulting services	Quality- and cost-based selection 762 person-months \$6.0 million
	Consultants will be selected following the ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).

²² International Federation of Consulting Engineers. 1999. *Conditions of Contract for Plant and Design–Build, first edition*. Geneva.

²³ Project Administration Manual (accessible from the list of linked documents in Appendix 2).

Aspects	Arrangements
retroactive financing and advance contracting	Retroactive financing for contractor's mobilization activities. Advance action for procurement of works and recruitment of services.
Disbursement	The loan proceeds will be disbursed in accordance with ADB <i>Loan Disbursement Handbook</i> (2015, as amended from time to time) and detailed arrangements agreed by MWSS and ADB.

ADB = Asian Development Bank, MWSS = Metropolitan Waterworks and Sewerage System.

Source: Asian Development Bank.

22. The procurement of the works is ongoing, with the first stage of the two-stage bidding process completed. Invitations to submit second stage bids were issued and bids are expected to be submitted by 22 March 2016.

III. DUE DILIGENCE

A. Technical

23. A full technical study was completed, confirming the project's feasibility. The existing system was assessed on its structural condition, hydraulic performance, and seismic resilience. Based on geologic and geotechnical surveys using maps and borehole logs, proposed alignment and stability requirements were defined. The findings, as presented in paragraphs 26 to 28, have been converted into appropriate design parameters, such as design and seismic loads, material properties, construction method, and durability requirements, and are included in the technical requirements of the works contract financed by this loan.

24. **Structural condition.** The older aqueducts lose nearly 10% of their inflow through leakage. Remediation is likely to involve local repair and/or replacement of longer lengths of pipe. The tunnels continue to convey significant volumes of raw water, which indicate that they are intact with no major collapse. Internal access will determine the internal condition and extent of remediation required. The other structures and appurtenances along the aqueducts are generally in poor condition. Rehabilitation will require replacement of most of these structures and appurtenances over time to ensure the transmission system's integrity.

25. **Hydraulic assessment.** The assessed capacity of the transmission system's tunnels and aqueducts has been used to estimate the system's hydraulic characteristics. The results highlight two important issues for the transmission system:

- (i) tunnel capacity is below the calculated maximum potential flow, requiring inspection and rehabilitation; and
- (ii) the aqueducts' full capacity is unavailable due to the restrictions in system operation, requiring increased flexibility by expanding the tunnel system and modifying the interconnecting basins.

26. **Seismic assessment.** The assessment of aqueducts' structural resilience indicates that there are no major issues to urgently address. The main concern is damage that will occur at hard and/or stiff points along the transmission system. It is recommended that this risk is best addressed by post-earthquake repair, rather than installation of expensive flexible joints. The first priority is to construct a new tunnel to augment the supply to the new aqueducts, improving flow conditions and operational flexibility in the transmission system.

B. Economic and Financial

27. Financial and economic analyses were undertaken by calculating the financial internal rate of return (FIRR) and economic internal rate of return (EIRR), and comparing these with the hurdle rates—the weighted average cost of capital and assumed economic opportunity cost of capital—as presented in Table 4. The project is considered financially and economically viable.

Table 4: Financial and Economic Indicators

Indicator	Net Present Value (Pesos million)	Net Present Value (\$ million)	Internal Rate of Return (%)	Hurdle Rate (%)
Financial	3,216.15	67.71	5.72	2.03
Economic	1,238.06	26.06	15.42	12.00

Source: Asian Development Bank estimates.

28. **Financial analysis.** Due to inadequate or poorly documented maintenance of the transmission infrastructure during the past decades, the probability of failure in Metro Manila’s water supply increases over time. By creating redundancy and flexibility in diverting flows, the project will allow rehabilitation of the transmission system without disrupting water supply to Metro Manila. It will not provide additional raw water supply or revenues for the MWSS or the concessionaires; hence, the “failure rate” approach was used to assess financial viability²⁴. Under the without-project or “do nothing” scenario, the resulting lost revenue for the concessionaires is compared with the project cost. The project’s FIRR of 5.72% compares favorably to the weighted average cost of capital of 2.03%.

29. The MWSS retains ownership of the water facilities and exercises its regulatory functions on water rates under the concession agreements between the MWSS and the two concessionaires. The costs associated with the MWSS’ major development projects, including the 1% sovereign guarantee fee for the sovereign guarantee of the ADB loan, are passed on and paid by the two concessionaires as part of the debt servicing under the concession fees.

30. **Economic analysis.** In the with-project scenario, the financial project cost is translated to its economic value using the domestic price numeraire by converting the foreign exchange and labor costs to their economic shadow prices. Furthermore, taxes are excluded in the economic analysis as these are considered transfer costs. Under the without-project scenario, resource cost savings are valued by multiplying lost-billed volume with the weighted average of the economic supply price of alternative water for domestic and nondomestic use. The alternative sources of water supply include small private companies that deliver water in container drums to residential areas. The residential demand for alternative water supply is assumed to be about 40% of the total water demand, because consumers will tend to limit the use of water to basic necessities due to significantly higher cost of alternative water compared with what they normally pay. The project’s EIRR of 15.4% compares favorably to the economic hurdle rate of 12.0%.

31. **Sensitivity analysis.** This analysis shows that the project remains financially and economically viable with a negative variation of 10% in the failure rate, flow rate, and water rates, which directly correlate with the project’s computed benefits. Changes in foreign

²⁴ A fact-based failure rate assessment requires a full set of reliable and consistent historical data on partial and full failure of the tunnel system, and consequent impacts on flow and recovery durations, which is lacking. For the Angat system, the failure rate assessment is based on the experts’ opinion, expecting a system failure of once every 5 years, reducing the flow by one-third of its full capacity, and requiring 60 days to restore full capacity.

exchange movement and operation and maintenance costs will not affect significantly the project's financial and economic viability. The minimum calculated FIRR is 4.59% and the EIRR is 13.06%.

C. Governance

32. **Financial management assessment.** The MWSS has adequate capacity to manage the project, as demonstrated by the completion of several projects financed by institutions such as ADB, Banque Nationale de Paris, Export–Import Bank of China, the International Bank for Reconstruction and Development, and the Japan Bank for International Cooperation.

33. As a Philippine government-owned and controlled corporation, the MWSS follows the basic policies and procedures outlined by the New Government Accounting System as required by the Commission on Audit (COA). The MWSS' administration undertook major reforms in 2012, including cost rationalization on the employee benefits system and tight controls on operation and maintenance expenses. These reforms have improved the financial condition of the MWSS. Since 2011, COA's audit reports found no major accountability issues.

34. **Procurement capacity assessment.** Procurement will involve international competitive bidding for (i) designing and constructing tunnels, appurtenant structures, and ancillary facilities; and (ii) recruiting supervision consultants.

35. The general procurement environment is adequate, and the MWSS has established a permanent Bid and Awards Committee (BAC) and technical working groups that receive regular training on government procurement policies and guidelines. The current BAC has no experience in procurement following ADB procedures, or in two-stage bidding processes, and has limited experience in procuring design–build contracts. The BAC and technical working group are aware that for contracts financed in whole or in part by ADB, procurement will follow the provisions in the loan agreement and ADB's Procurement Guidelines (2015, as amended from time to time), and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). ADB will provide procurement support through grant-financed experts to assist with the evaluation, negotiation, and awarding procedures of the works and services contracts.

36. ADB's Anticorruption Policy (1998) was explained and discussed with the government and the MWSS. The risk assessment and risk management plan describes policy requirements and supplementary measures.²⁵

D. Poverty and Social

37. The project is classified as a general intervention given that it will indirectly target poverty reduction for the beneficiary water end users in Metro Manila and the communities residing near the source, or source communities.²⁶ In Metro Manila, the project will ensure the continuity of water supply to its 15 million residents. Both concessionaires have programs to ensure that their services are accessible to the poor communities of Metro Manila.²⁷ For the source communities, the project will support the employment in civil works construction, as well as promoting local skills development.²⁸

²⁵ Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

²⁶ Bigte and San Mateo barangays, Bulacan Province.

²⁷ Manila Water's *Tubig para sa Barangay* (Water for the Poor) program and Maynilad Water Services' *Samahang Tubig Maynilad* (Water Organization Manila).

²⁸ The target is for 50% of unskilled jobs to be filled by people from the source communities and indigenous peoples.

38. The project is also classified as some gender elements. Proactive gender features have been included in the project design. These include (i) training in water conservation and hygiene promotion of source communities, with special focus on women and children; and (ii) promoting public awareness among men and women in the source communities on the livelihood opportunities and benefits that will be generated during project construction.

39. Both concessionaires' low-income communities programs include actions for empowering women by including them in the decision-making and implementation processes. The MWSS is coordinating the project's implementation and management, including the collection of sex-disaggregated data for input and use in the regular monitoring and review of gender design measures, including the midterm review and project completion report.

E. Safeguards

40. **Environment.** The project is categorized as B, given that it is not expected to cause irreversible adverse environment impacts. An environmental impact screening was carried out and an initial environmental examination (IEE) report was prepared. The bid document includes an environmental management plan that ensures mitigation of identified environment impacts during construction. The IEE follows a process that complies with ADB's Safeguard Policy Statement (2009) with supporting justification for Appendix 1, Section 8 regarding protected areas, Philippine laws and regulations, and compliance with the same.

41. **Land acquisition and involuntary resettlement.** The project is categorized as C because there is no physical and/or economic displacement and/or land acquisition. The construction and use of the tunnel, which is situated 50 to 200 meters below the ground surface, do not impose any safety risks to the existing assets, establishments, surface structures, and land use. The legal rights of the land above the tunnel belong to the MWSS. The project preparatory technical assistance confirmed that it is extremely unlikely that any future development on the surface will damage the tunnel's structural and functional integrity. A due diligence report was prepared documenting the consultations with the households living along the tunnel alignment. Consultations will be continued throughout the project cycle. Any unanticipated impacts during implementation will be mitigated in accordance with the Safeguard Policy Statement.

42. **Indigenous peoples.** The project is categorized as B because the planned contractors' work area of 1 hectare is part of the protected Ipo watershed area, which overlaps with an area claimed as ancestral domain by the indigenous Dumagat people. The land is free from any structures, establishments, and vegetation. The project's impact is limited to disturbances during construction. Consultations were held with the indigenous peoples communities living along the tunnel and an indigenous peoples plan (IPP) was prepared, outlining measures to mitigate these disturbances. The IPP will be updated once a detailed engineering design is available, and will be posted on the ADB website. Meaningful consultations will be continued with the indigenous peoples in accordance with the Safeguard Policy Statement.

F. Risks and Mitigating Measures

43. Climate risks to the project are assessed by AWARE as "high" due to potential increases in risks from flooding, landslides, and on-shore category 1 storms. Although these risks exist in principle due to the geographic location of the project, no alteration in location or design is

required. The intake structure is submerged under normal operating conditions and is unlikely to be affected by flooding or landslides occurring upstream in either Angat or Ipo reservoirs.

44. The project's key risks are limited to a lack of MWSS staff capacity to procure, recruit, and effectively supervise project implementation. The BAC and technical working group members responsible for procuring the works have limited experience and training in procurement through international competitive bidding, particularly in design-build contracts and selection of project implementation assistance consultants. ADB will recruit individual consultants to assist the MWSS, while ADB Operations Services and Financial Management Department will supervise the procedures.

45. The risks are assessed to be manageable and appropriate mitigation measures are in place. The integrated benefits and impacts are expected to outweigh the costs of risk mitigation. Major risks and mitigating measures are described in detail in the risk assessment and risk management plan.²⁹

IV. ASSURANCES

46. The government and the MWSS have assured ADB that implementation of the project will conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as detailed in the project administration manual and loan documents. The government and the MWSS have agreed with ADB on certain covenants for the project, which are set forth in the loan agreement and guarantee agreement.

V. RECOMMENDATION

47. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of \$123,300,000 to Metropolitan Waterworks and Sewerage System, to be guaranteed by the Republic of the Philippines for the Angat Water Transmission Improvement Project, from ADB's ordinary capital resources, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; for a term of 25 years including a grace period of 6.5 years, and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and guarantee agreements presented to the Board.

Takehiko Nakao
President

26 February 2016

²⁹ Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
2. Capacity building support provided	<p>2a. By 2022: Ten project management office staff with improved skills in contract management (2016 baseline: N/A)</p> <p>2b. By 2018: Two gender awareness promotion and training sessions for MWSS staff completed and attended by 30 people each. (2016 baseline: N/A)</p> <p>2c. By 2018: 200 local people trained on water conservation, hygiene promotion, livelihood opportunities and awareness of health-related risks (with 50% women meaningfully participating) (2016 baseline: N/A)</p>	<p>2a. Annual report on MWSS's Strategic Performance Management System.</p> <p>2b–c. Quarterly progress reports and attendance sheets, prepared by consultant</p>	Time and cost overruns due to occurrence of in flooding, landslides, and on-shore category 1 storms.
<p>Key Activities with Milestones</p> <p>Output 1. New tunnel constructed</p> <p>1.1 Approval of bid documents (Feb 2015)</p> <p>1.2 Issuing of invitation to bid (Feb 2015)</p> <p>1.3 Contracting of works (Jun 2016)</p> <p>1.4 Completion of works (Dec 2021)</p> <p>Output 2. Capacity building support provided</p> <p>2.1 Approval of terms of reference (Feb 2016)</p> <p>2.2 Issuing request for proposal (Feb 2016)</p> <p>2.3 Contracting of services (Dec 2016)</p> <p>2.4 Gender awareness training (Jan–July 2017)</p> <p>2.5 Community consultations and training (Jan–Dec 2017)</p> <p>2.6 Completion of services (Dec 2021)</p> <p>Inputs</p> <p>ADB: \$123.3 million</p> <p>Government: \$10.7 million</p> <p>Assumptions for Partner Financing</p> <p>Not applicable.</p>			

ADB = Asian Development Bank, m³/sec = cubic meter per second, MWSS = Metropolitan Waterworks and Sewerage System; n/a = not applicable.

^a http://mwss.gov.ph/?page_id=238

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/RRPs/?id=46362-002-3>

1. Loan Agreement
2. Guarantee Agreement
3. Sector Assessment (Summary): Water and other Urban Infrastructure Services
4. Project Administration Manual
5. Contribution to the ADB Results Framework
6. Development Coordination
7. Financial Analysis
8. Economic Analysis
9. Country Economic Indicators
10. Summary Poverty Reduction and Social Strategy
11. Initial Environmental Examination
12. Indigenous Peoples Plan
13. Risk Assessment and Risk Management Plan

Supplementary Documents

14. Poverty and Social Analysis Report
15. Involuntary Resettlement Due Diligence Report
16. Procurement Capacity Assessment Report and Recommendations