

Project Administration Manual

Project Number: 46362-002
February 2016

Republic of the Philippines: Angat Water
Transmission Improvement Project

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Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Metropolitan Waterworks and Sewerage System (MWSS) is wholly responsible for the implementation of ADB financed projects, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by MWSS of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations the borrower and ADB shall agree to the PAM and ensure consistency with the Loan agreement. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Loan Agreement, the provisions of the Loan Agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP) changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the PAM.

Abbreviations

ADB	=	Asian Development Bank
ADF	=	Asian Development Fund
AFS	=	audited financial statements
CQS	=	consultant qualification selection
DMF	=	design and monitoring framework
EA	=	executing agency
EARF	=	environmental assessment and review framework
EIA	=	environmental impact assessment
EMP	=	environmental management plan
ESMS	=	environmental and social management system
GACAP	=	governance and anticorruption action plan
GDP	=	gross domestic product
ICB	=	international competitive bidding
IEE	=	initial environmental examination
IPP	=	indigenous people plan
IPPF	=	indigenous people planning framework
LAR	=	land acquisition and resettlement
LIBOR	=	London interbank offered rate
MWSS	=	Metropolitan Waterworks and Sewerage System
NCB	=	national competitive bidding
NGOs	=	nongovernment organizations
PAI	=	project administration instructions
PAM	=	project administration manual
PIU	=	project implementation unit
QBS	=	quality based selection
QCBS	=	quality- and cost based selection
RRP	=	report and recommendation of the President to the Board
SBD	=	standard bidding documents
SGIA	=	second generation imprest accounts
SOE	=	statement of expenditure
SPS	=	Safeguard Policy Statement
SPRSS	=	summary poverty reduction and social strategy
TOR	=	terms of reference

I.

I. PROJECT DESCRIPTION

1. **Project's rationale, location and beneficiaries.** 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.¹ The project directly supports the government's sector development goal by providing access to safe, adequate and sustainable water supply to all by 2025.²

2. 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.³ 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.

3. 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.⁴

4. 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.⁵ The government has asked the Asian Development Bank (ADB) to finance this investment.

5. **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. 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.

6. 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

¹ ADB. 2012. *Technical Assistance to the Philippines for Angat Water Transmission Improvement Project*. Manila. (TA 8169-PHI, approved on 13 September 2012).

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

³ 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.

⁴ The MWSS formally requested ADB assistance with the rehabilitation of the aqueducts. The project preparatory technical assistance is tentatively scheduled for 2016 approval.

⁵ The National Capital Region accounts for 32% of the gross domestic product of the Philippines.

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.⁶ The MWSS plans to develop another significant water source through the New Centennial Water Source Project.⁷ However, this will only be operational after 2021.⁸ 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.

7. **Loss of water supply.** The chance of a serious breakdown of Metro Manila's only water source is increasing.⁹ 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 2012.¹⁰ 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.

8. **Impact and Outcome.** The impact of the project is aligned with the government's sector development goal by 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.

9. **Outputs.** The project will have two outputs.

10. **New tunnel constructed.** The new tunnel is approximately 6.3 kilometers (km.) long and with a finished, internal span diameter of approximately 4 meters. The works consist of (i) intake structure at Ipo reservoir, (ii) tunnel works, (iii) new transition basin at Bigte; (iv) connection of the new transition basin at Bigte to the existing transition basin No.3 at Bigte, and (v) necessary modifications to the existing transition basin No.3 at Bigte.

11. With the concessionaries' expanding coverage, demand has increased accordingly to about 40 m³/sec (or 3.4 million cubic meters per day [m³/day]). Until recently, the water gained through the concessionaires' nonrevenue water (NRW) reduction programs could meet the increased demand. Since these programs will soon achieve their optimal results,¹¹ raw water supply expansion must cover future increased demand.

12. The forecasted demand for Metro Manila's water supply is 50 m³/sec (or 4.2 million m³/day) by 2025 and 70 m³/sec (or 6.1 million m³/day) by 2035, while the granted water right for the Angat system is 54 m³/sec. However, in 80% of the time, the flow is less than 46 m³/sec and in 50% of the time, it is even less than 40 m³/sec. Restoring the design capacity is urgently required to ensure that demand can be met over the next few years while also developing alternative water sources.

⁶ Further nonrevenue water reduction is not cost effective: the incremental benefits will not compensate for the incremental costs.

⁷ System of dams, reservoirs, and transmission lines, located 40 kilometers east of Metro Manila.

⁸ 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.

⁹ 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.

¹⁰ NJS Consulting Engineers. 2005. *Angat Water Utilization and Aqueduct Improvement Project Phase 2 (Final Report)*. Manila.

¹¹ Further nonrevenue water reduction is not cost effective: the incremental benefits will not compensate the incremental costs.

13. The tunnel construction is the second step of a full rehabilitation of the Angat transmission system. The first step was the construction of aqueduct 6 and partial rehabilitation of aqueduct 5, all completed in July 2012. The construction of tunnel 4 creates redundancy in the tunnel system and augments the supply to the new aqueduct to its full capacity. Flow conditions and operational flexibility in the transmission system will improve. Consequently, it will be possible to fully rehabilitate the transmission system by sequentially closing, inspecting, and rehabilitating the other tunnels and aqueducts. A priority list of older structures and appurtenances needing renewal, rehabilitation and/or decommissioning can be prepared. An initial assessment is presented in Table 4.1.

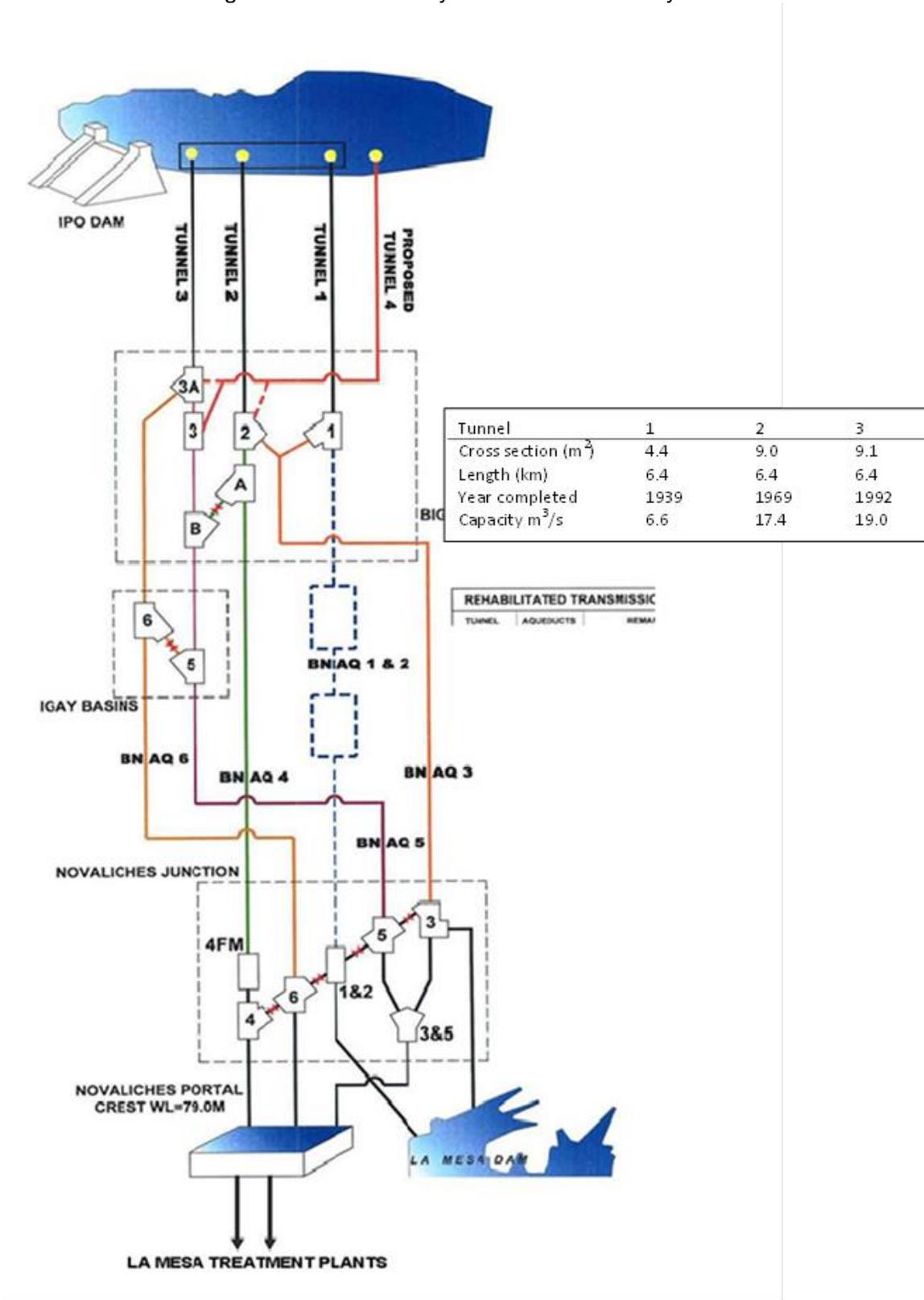
Table 4.1: Priority for potential rehabilitation to conveyance structures

Priority	Conveyance	Issues	Potential rehabilitation
1	New Tunnel 4	Critical to increase flow and facilitate subsequent inspection and rehabilitation	Subject of this project
2	Tunnel 3	Critical tunnel, no permanent concrete lining, rock bolts 21-year-old	Permanent concrete lining - locally or total length, use corrosion resistant rock bolts + additional shotcrete
3	Tunnel 2	Critical tunnel, 30-year-old	Optioneered repairs to concrete lining
	Aqueduct 4	Important aqueduct, leakage at 9%, precast pipes potential seismic risk	Optioneered solution from local joint repair to full replacement of pipes, replace all fittings
4	Tunnel 1	74-year-old tunnel	Additional lining, lining repair to maintain integrity
5	Aqueduct 3	44-year-old, leakage at 10%	Repairs to concrete, replace essential fittings for emergency operation
6	Aqueduct 1-2	74-year-old, leakage at 6%, fittings generally not serviceable	Decommission

Source: Asian Development Bank.

14. A schematic diagram of the transmission system is in Figure 1.

Figure 1: Schematic layout of transmission system



15. **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.

16. The tunnel will be contracted under a design-build contract. The design of the works requires high-quality and specific expertise in tunnel design, while during construction, design may have to be adjusted based on local geological conditions which can only be confirmed during construction.

17. To ensure that works will be completed strictly following technical and environmental specifications as outlined in the employer's requirements and the environmental management plan, high quality and specific design review and works supervision is required.

18. The poverty and social analysis was prepared to address social impacts and enhance distribution of project benefits. 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.¹² 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.¹³ For the source communities, the project will support the employment in civil works construction, as well as promoting local skills development.¹⁴

19. 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.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

20. ADB approved the advance actions in procurement and recruitment on 5 September 2013. An advance contracting notice of the works was issued on 16 September 2013. The bid documents have been approved and an invitation to bid was issued on 20 February 2015.

¹² Bigte and San Mateo barangays, Bulacan Province.

¹³ Manila Water's *Tubig para sa Barangay* (Water for the Poor) program and Maynilad Water Services' *Samahang Tubig Maynilad* (Water Organization Manila).

¹⁴ The target is for 50% of unskilled jobs to be filled by people from the source communities and indigenous peoples.

Project Readiness Activities

INDICATIVE ACTIVITIES	Completed	To be completed	RESPONSIBLE
Issuing invitation to bid - works	Feb 2015		EA
Issuing request for proposal - services		Feb 2016	EA
Establish project implementation arrangements	Feb 2015		EA
ADB Board approval		March 2016	EA
Loan signing		April 2016	EA/ADB
Government legal opinion provided		April 2016	EA
Loan effectiveness		April 2016	

B. Overall Project Implementation Plan

	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Loan negotiation					■																							
Loan signing						■																						
Loan effectiveness							■																					
Tunnel Construction																												
Notice to Proceed							■																					
Contractor's mobilization								■																				
Surveys and Investigations								■																				
Detailed design								■																				
Construction								■																				
Performance tests, commissioning																												
Demobilization																												
Defect notification period																												
Management Activities																												
Advertisement design build contract																												
1 st stage bidding																												
Technical evaluation																												
2 nd stage bidding																												
Technical/financial evaluation																												
Contract award																												
Advertisement management consultant contract																												
Bidding																												
Evaluation																												
Contract award																												
Contract supervision and project management																												
Safeguard implementation																												
Updating draft EMP																												
Validation of IR classification																												
Updating draft IPP																												
Implement FPIC																												
Safeguard monitoring																												

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

21. The project will be managed in a manner similar to the management of the construction of the recently completed aqueduct number 6 and partial rehabilitation of aqueduct number 5.
22. MWSS will be the executing agency for the project and will be the contracting party of the works and services contracts. MWSS will be responsible for the overall execution of the project.
23. The MWSS's Project Management Office as approved by the Governance Commission for Government Owned or Controlled Corporations (GCG) on November 23, 2015 will be responsible in the implementation of its special projects. The PMO falls under the Office of the Deputy Administrator for Engineering and Operations. This project will be managed by the Project Management Office - Angat Water Transmission Improvement Project (PMO-AWTIP). It will be organized for the day-to-day management of the project from pre-construction (including procurement) up to post-construction (commissioning and project close-out). The project management team will be led by an MWSS project manager and/or contracting officer. The project management team will consist of MWSS engineering and project management staff and will be supported by the PMO-Support Services Group, a technical group representing the two concessionaires and the Common Purpose Facilities and a consultant's team.
24. The PMO-AWTIP will include a specific unit, responsible for implementation and monitoring social and environmental safeguards. This unit will be supported by the Resettlement Group within a Support Services Group under the Deputy Administrator for Engineering and Operations. This group is responsible for the projects that requires crucial component such as land acquisition and right of way, relocation and/or resettlement concerns.
25. This safeguard unit will be responsible for (i) providing technical assistance in the effective implementation of the environmental management plan and indigenous people's plan; (ii) the validation and updating of involuntary resettlement due diligence and inventory of impacts, and updating of environmental management plan (EMP) and indigenous peoples plan (IPP) based on the final technical design; (iii) providing capacity development for IP associations, (iv) implementation of awareness programs and communication strategy, (v) coordinating with National Commission on Indigenous Peoples (NCIP) Bulacan and IP communities in the conduct of the Free Prior and Informed Consent (FPIC), (vi) monitoring of EMP, IPP and social development program, and (vi) report preparation.
26. The PMO-AWTIP will be responsible for implementation and monitoring of project's social development action plans, including the gender action plan, summary poverty reduction strategy, and stakeholder communication strategy.
27. Overall supervision is provided by MWSS Board and by National Economic and Development Authority and Department of Finance as part of their supervisory role of government-owned and controlled corporations (GOCC).
28. The consultant provides contract management and construction supervision services for the duration of project implementation. Scope of work includes review of detailed engineering

design, review and monitoring of the contractor's plans for traffic management and re-routing, environmental management, and safety, protection, security and accident prevention.

29. MWSS has little experience in handling the procurement following ADB procedures, nor in two-stage bidding processes and limited experience in procuring design and build contracts. ADB and the PPTA consultant provide support in the finalization of bidding documents. ADB will provide procurement support through grant-financed experts to assist with the evaluation, negotiation, and awarding procedures of the works and services contracts.

Project implementation organizations	Management Roles and Responsibilities
<ul style="list-style-type: none"> • MWSS (EA) 	<ul style="list-style-type: none"> ➤ Overall responsibility for project execution ➤ Contracting party for contractors and consultants ➤ Reviews the project implementation progress ➤ Reviews and endorses any proposed change in the project scope or implementation arrangements ➤ Ensures compliance with safeguard and other loan covenants ➤ Ensures compliance of financial audit recommendations
<ul style="list-style-type: none"> • Project management office 	<ul style="list-style-type: none"> ➤ Day-to-day management of works contract ➤ Day-to-day management of service contract ➤ Monitors project implementation progress ➤ Reviews and submits payment requests and manages finance ➤ Reviews and endorses contract variation requests ➤ Initiates updates of Construction Environmental Management Plan (CEMP), IPP and IR validation ➤ Reviews environmental compliance and proposes mitigation actions when required ➤ Implements and monitors stakeholder communication strategy (SCS) and summary poverty reduction and social strategy (SPRSS) ➤ Obtain approvals from government departments and/or agencies ➤ Reports on compliance with loan covenants ➤ Reports on compliance of financial audit recommendations
<ul style="list-style-type: none"> • Technical working group 	<ul style="list-style-type: none"> ➤ Provides technical know-how related to operation and maintenance issues of completed works that may affect project design and construction ➤ Reviews and endorses payment requests ➤ Reviews and endorses contract variation requests
<ul style="list-style-type: none"> • ADB 	<ul style="list-style-type: none"> ➤ Approves procurement documents, evaluations and contracting proposals. ➤ Conducts periodic project review missions, a mid-term review and a completion mission for the project ➤ Confirms compliance of all loan covenants ➤ Confirms compliance of financial audit recommendations ➤ Updates the project performance review reports ➤ Processes withdrawal applications and releases eligible funds ➤ Updates project information subject to disclosure on the ADB website

B. Key Persons Involved in Implementation

Executing Agency

Metropolitan Waterworks and Sewerage System

Officer's Name: Leonor C. Cleofas
 Position: Deputy Administrator, Office of the Deputy Administrator for Engineering & Operations
 Telephone: +63 (0)2 922-3757; 922-2969
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 Office Address: Administration Building, MWSS Complex, 489 Katipunan Road, Balara, Quezon City 1105 Philippines

ADB

Urban and Water Division, Southeast Asia Regional Department

Staff Name: Tatiana Gallego-Lizon
 Position: Director
 Telephone No. +63 (0)2 632-5613
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Mission Leader

Staff Name: Paul van Klaveren
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C. Project Organization Structure

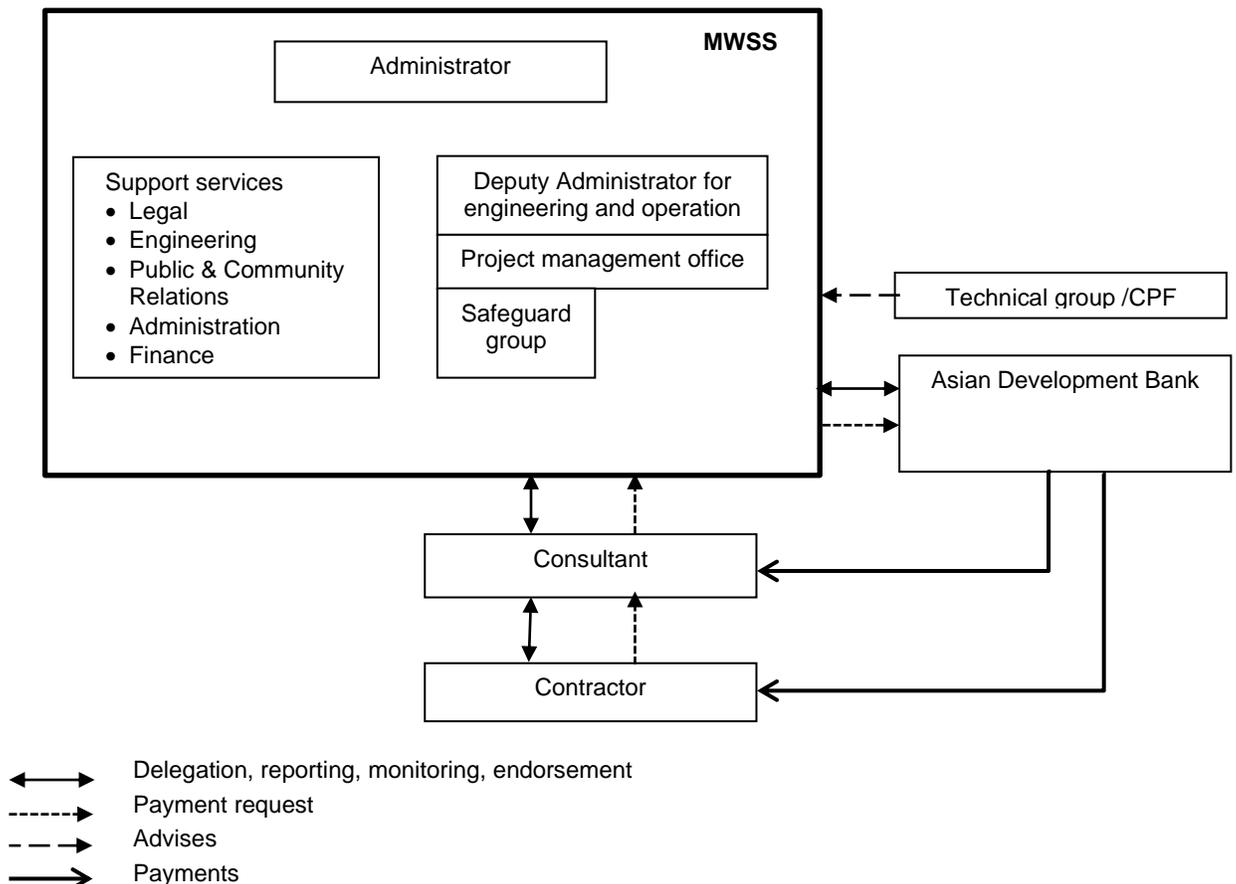


Table 4.3: Project Readiness Filters

Key Project Preparation Elements	Stage of Project Preparation			Comments
	Appraisal/ SRM	Negotiations	Effectiveness	
Project consistent with government plans	Confirmed			Project is in the 2013 Country Operations Business Plan.
EA related assessment				
Sector's Institutional and Political Economy Context	Done			Part I section A and part III of CP
Stakeholder Analysis	Done			Part I section A and part III of CP
Procurement capacity assessment	Done			Summary in Part IV, section C of RRP Full description in Part VI, section B of PAM)
Financial management capacity assessment	Done			Summary in Part IV, section C of RRP Full description in Part V, section A of PAM)
Governance risk assessment	Done			Summary in Part IV, section C of RRP Full description in Part V, sections B, C and D of PAM
Feasibility study and preliminary design	Completed			Bid documents are being finalized
Safeguards				
Environmental Assessment	Completed			Cat B, IEE completed
Involuntary Resettlement Assessment	Completed			Cat C
Right-of-way acquisition and Resettlement action plan	N/A			No compensation required
Indigenous Peoples Assessment	Completed			Cat B – IPP completed
Design and Monitoring Framework	Agreed			RRP Appendix 1
Project M&E arrangements	Confirmed			section IX of PAM
Base-line data	Confirmed			Reflected in DMF
Project implementation mechanisms				
Analysis whether a PIU is needed	Done			Appendix 1 of CP
Identification of Project Director and project management team	Identified			Part III of PAM
Office, equipment, and other facilities for project implementation	Identified			Part III of PAM
Procurement issues				
Advance contracting of goods, works, and services	Started			
Procurement plan (at least first 18 months) with details on each contract's schedule and approval flow chart	Finalized			Part VI, section C of PAM
ToRs and RFPs for consultancy contracts	Draft ToR finalized – for review by EA		contracts ready for signing	Part VI, section D of PAM
Bidding documents for all	Bid			Bidding to start as soon as

Key Project Preparation Elements	Stage of Project Preparation			Comments
	Appraisal/ SRM	Negotiations	Effectiveness	
contracts on works and goods to be procured in the first 18 months	documents to be finalized and submitted to ADB by August 2014			government clears bid documents.
Project Administration Manual	Confirmed by EA and signed off by PAU head			PAM being finalized
Philippines Authorities' approvals obtained				
Loan Fact Finding Mission MoU signed by EA/DOF a. Draft PAM agreed	x			
ICC-CC approval after ICC-TB endorsement	x			
FOA issued by DBM		x		
NEDA Board confirmation of ICC-CC approval		x		

IV. COSTS AND FINANCING

30. **Cost Estimate.** The total cost of the Project is estimated at \$134.0 million, including taxes, duties, and physical and price contingencies (Table 4.4).

Table 4.4: Project Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1 Construction of a new tunnel	98.4
1.1 Facilities	3.0
1.2 Contractor's design	2.9
1.3 Civil and electro-mechanical works	90.3
1.4 Environmental and social mitigation measures	2.2
2 Capacity building support	6.0
Sub-total (A)	104.4
B. Physical and Price 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 ADB loan(s) 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.

31. The Government requested a \$123.3 million loan 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, a straight-line repayment method, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility plus a contractual spread of 0.50% per year, a commitment charge of 0.15% per year on the undisbursed loan amount (the interest and other charges during construction to be capitalized in the loan) and such other terms and conditions to be set forth in the draft loan agreement. Based on this, the average loan maturity is 16 years and the maturity premium payable to ADB is 0.10% per annum.

32. The financing plan is in Table 4.5.

Table 4.5: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
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 Government will finance taxes duties.

Table 4.6: Detailed Cost Estimates by Expenditure Category

Item	Amount ^a (US\$ Million)			% of Base Costs
	Local	Foreign	Total	
A. Investment Costs^b				
1 Tunnel construction				
1.1 Facilities	3.0		3.0	2.9
1.2 Contractor's design	2.9		2.9	2.8
1.3 Civil works	68.5	20.7	89.2	85.4
1.4 Electro-mechanical works		1.1	1.1	1.1
1.5 Environmental and social mitigation measures	2.2		2.2	2.1
Total construction of a new tunnel	76.6	21.8	98.4	94.3
2 Capacity building support	4.8	1.2	6.0	5.7
Subtotal (A)	81.4	23.0	104.4	100.0
B. Physical and Price Contingencies^c	17.2	4.8	22.0	21.1
C. Financing Charges during Implementation^d				
1 Interest During Implementation		6.9	6.9	6.6
2 Commitment Charges		0.3	0.3	0.3
Subtotal (C)		7.6	7.6	7.3
Total Project costs (A+B+C)	98.6	35.4	134.0	128.4

^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 ADB loan(s) 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.

Table 4.7: Allocation and Withdrawal of Loan Proceeds

ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS Angat Water Transmission Improvement Project			
No.	Item	Total Amount Allocated for ADB Financing Category	Basis for Withdrawal from the Loan Account
1	Construction of a new tunnel	88,100,000	100% of total expenditure claimed*
2	Capacity building support	5,600,000	100% of total expenditure claimed*
3	Interest and Commitment Charges	7,600,000	100% of amounts due
4	Unallocated	22,000,000	
	Total	123.300,000	

*Exclusive of taxes and duties imposed within the territory of the Borrower.

Table 4.8: Detailed Cost Estimates by Financier
(\$ million)

Item	ADB	% of Cost Category	Government	% of Cost Category	Total Cost
A. Investment Costs^a					
1 Tunnel construction					
1.1 Facilities	2.6	100.0			2.6
1.2 Contractor's design	2.4	100.0			2.4
1.3 Civil works	80.1	100.0			80.1
1.4 Electro-mechanical works	1.0	100.0			1.0
1.5 Environmental and social mitigation measures	2.0	100.0			2.0
Total construction of a new tunnel	88.1	100.0			88.1
2 Capacity building support	5.6	100.0			5.6
3 Taxes and duties			10.7	100.0	10.7
Subtotal (A)	93.7	100.0			104.4
B. Physical and Price Contingencies^b	22.0	100.0			22.0
C. Financing Charges during Implementation^c					
1 Interest During Implementation	7.3	100.0			7.3
2 Commitment Charges	0.3	100.0			0.3
Subtotal (C)	7.6	100.0			7.6
Total Project costs (A+B+C)	123.3	92.0	10.7	8.0	134.0

^a In mid-2015 prices.

^b 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.

^c Includes interest and commitment charges. Interest during construction for ADB loan(s) 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.

Table 4.9: Detailed Cost Estimates by Output
(\$ million)

Item	Output 1	% of Cost Category	Output 2	% of Cost Category	Total Cost
A. Investment Costs^a					
1 Tunnel construction					
1.1 Facilities	2.6	100.0			2.6
1.2 Contractor's design	2.4	100.0			2.4
1.3 Civil works	80.1	100.0			80.1
1.4 Electro-mechanical works	1.0	100.0			1.0
1.5 Environmental and social mitigation measures	2.0	100.0			2.0
Total construction of a new tunnel	88.1	100.0			88.1
2 Capacity building support			5.6	100.0	5.6
3 Taxes and duties ^b	10.3	96.3	0.4	3.7	10.7
Subtotal (A)	98.4	94.3	6.0	5.7	104.4
B. Physical and Price Contingencies^c	21.7	98.6	0.3	1.4	22.0
C. Financing Charges during Implementation^d					
1 Interest During Implementation	6.9	95.0	0.4	5.0	7.3
2 Commitment Charges	0.3	100.0			0.3
Subtotal (C)	7.2	95.0	0.4	5.0	7.6
Total Project costs (A+B+C)	127.3	95.0	6.7	5.0	134.0

^a In mid-2015 prices.

^b Taxes and duties to be financed from government resources.

^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 ADB loan(s) 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.

Table 4.10: Detailed Cost Estimates by Year
(\$ million)

Item	Total	2016	2017	2018	2019	2020	2021
A. Investment Costs^a							
1 Tunnel construction							
1.1 Facilities	2.6	0.7	0.8	0.4	0.3	0.3	0.1
1.2 Contractor's design	2.4	0.9	1.0	0.2	0.2	0.1	0.0
1.3 Civil works	80.1	8.3	17.5	18.4	17.6	18.3	0.0
1.4 Electro-mechanical works	1.0	0.1	0.1	0.0	0.1	0.7	0.0
1.5 Environmental and social mitigation measures	2.0	0.5	1.0	0.5	0.0	0.0	0.0
Total construction of a new tunnel	88.1	10.5	20.4	19.5	18.2	19.4	0.1
2 Capacity building support	5.6	1.5	1.8	0.9	0.8	0.5	0.1
Subtotal (A)	93.7	12.0	22.2	20.4	19.0	19.9	0.2
B. Contingencies^b	22.0	5.5	4.9	4.7	4.4	2.5	0.0
C. Financing Charges during Implementation^c	7.6	0.3	0.8	1.1	1.4	1.8	2.2
Total Project Costs (A+B+C)^d	123.3	17.8	27.9	26.2	24.8	24.2	2.4
% of Total Project Costs	100.0	14.4	22.6	21.2	20.1	19.7	1.9

^a In mid-2015 prices.

^b 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.

^c Includes interest and commitment charges. Interest during construction for ADB loan(s) 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.

^d Excluding taxes and duties

Source: Asian Development Bank estimates.

A. Contract and Disbursement S-curve

Table 4.11: Contract Awards Projections (\$ million)

	Total					
	Q1	Q2	Q3	Q4	Annual	Cumulative
2016	0.0	0.0	88.1	5.6	93.7	93.7
2017	0.0	0.0	0.0	0.0	0.0	93.7
2018	0.0	0.0	0.0	0.0	0.0	93.7
2019	0.0	0.0	0.0	0.0	0.0	93.7
2020	0.0	0.0	0.0	0.0	0.0	93.7
2021	0.0	0.0	0.0	22.0	22.0	115.7

Figure 2: Contract Awards Projections

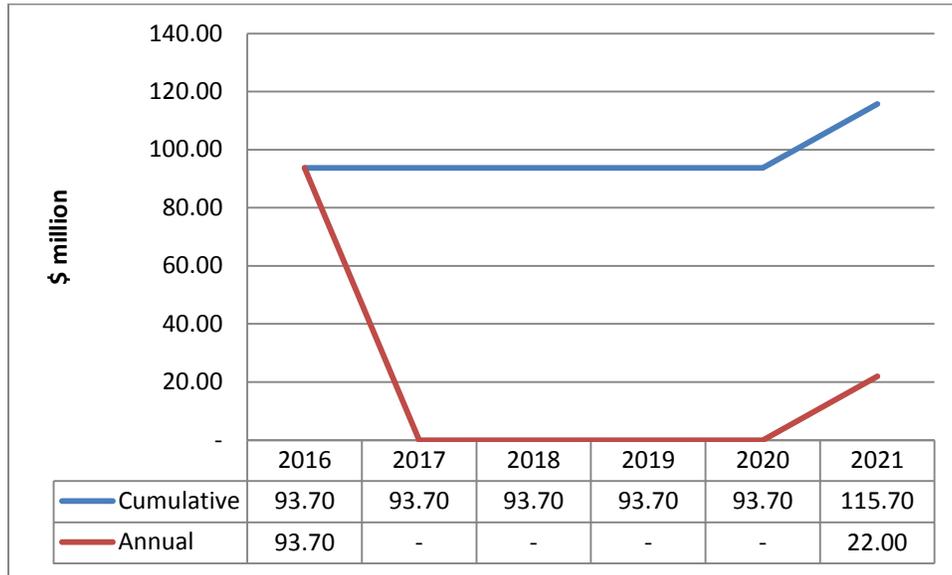
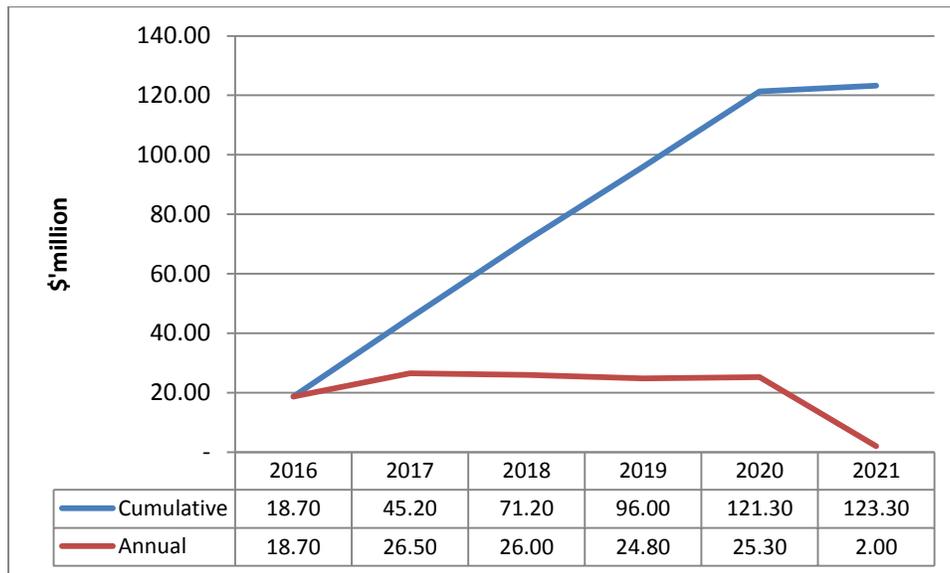


Table 4.12: Disbursement Projections (\$ million)

	Q1	Q2	Q3	Q4	Total	
					Annual	Cumulative
2016	0.0	0.0	17.6	1.1	18.7	18.7
2017	3.0	3.0	9.5	11.0	26.5	45.2
2018	6.5	6.5	6.5	6.5	26.0	71.2
2019	6.2	6.2	6.2	6.2	24.8	96.0
2020	6.0	6.0	5.8	7.5	25.3	121.3
2021	0.6	0.5	0.5	0.4	2.0	123.3
2022	0.0	0.0	0.0	0.0	0.0	123.3

Figure 3: Disbursement Projections



B. Fund Flow Diagram

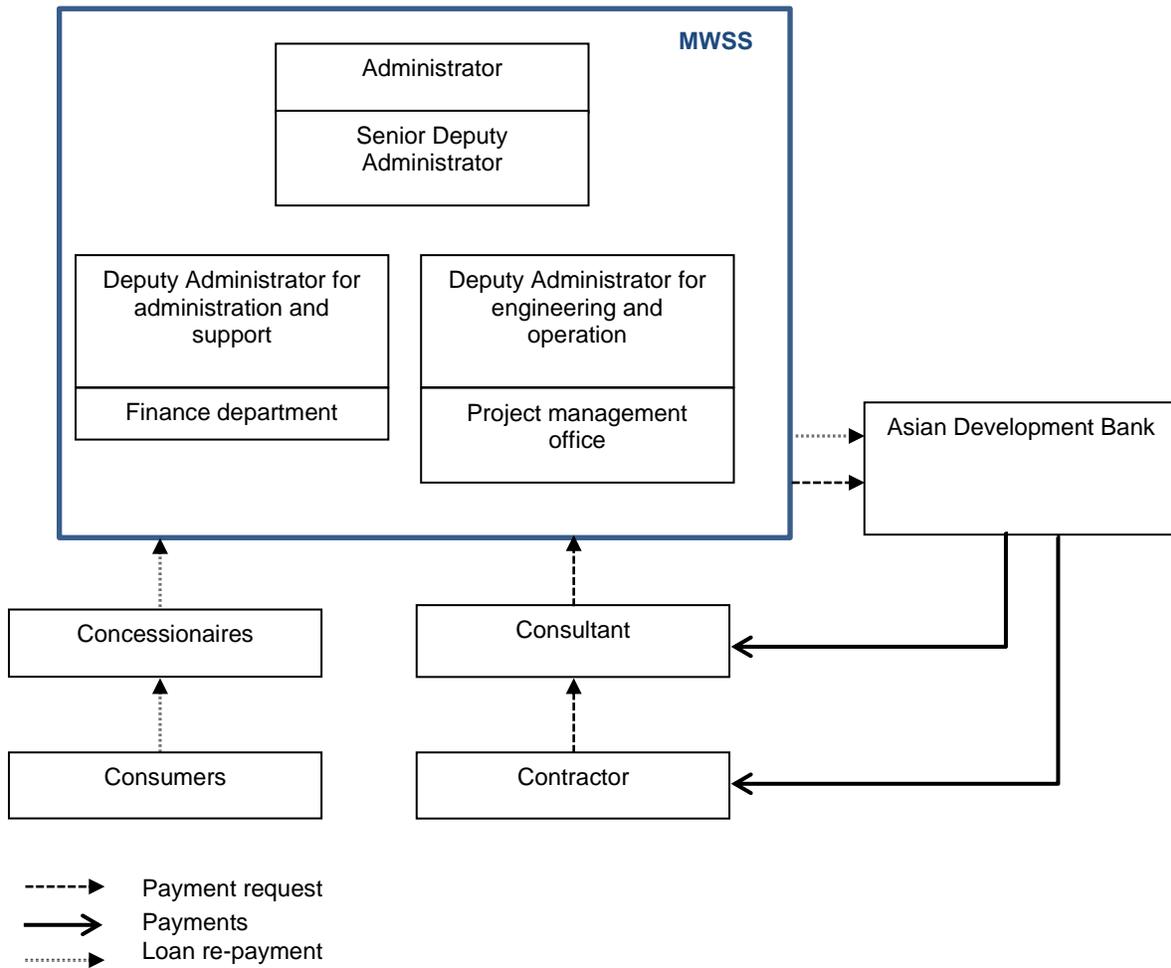
33. The following are the funds flow arrangements:

For Loan Disbursement

- Contractor and consultant submit billing to MWSS. In case of contractors' claim, the consultant will endorse this claim;
- ADB releases funds directly to the contractor based on approved withdrawal application.

For loan and interest repayment

- ADB submits billing to MWSS
- MWSS advises concessionaires for loan/interest payment
- Concessionaires release funds to MWSS representing loan/interest payment
- MWSS releases funds to ADB representing loan/interest payment



V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

34. The Financial Management Capacity risk is assessed to be moderate. MWSS is a GOCC created under Republic Act 6234 “to ensure an uninterrupted and adequate supply and distribution of potable water for domestic and other purposes at just and equitable rates”. It has implemented several projects financed by foreign institutions like ADB, IBRD, China Eximbank, JBIC, Banque Nationale de Paris. MWSS follows the basic policies and procedures outlined by the new government accounting system (NGAS) as required by the Commission on Audit (COA). MWSS has prepared a comprehensive well-documented MWSS accounting and internal audit manual to comply with the basic objectives of financial reporting and the objectives of the prescribed NGAS. For the last three years, no major accountability issues were brought out in the audit reports by COA. Financial sustainability of the investment is secured through repayment from the water users through the concessionaries, as part of the water fees.

35. MWSS retains ownership of the water facilities and exercises its regulatory functions on water rates under the concession agreements between MWSS and the two concessionaires. The costs associated with MWSS’s 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.

36. The project loan supports the recruitment of contract management consultants, tasked to assist MWSS in financial management of the project. No further project related actions are proposed.

B. Disbursement

37. The Loan proceeds will be disbursed in accordance with ADB’s *Loan Disbursement Handbook* (2015, as amended from time to time), and detailed arrangements agreed upon between the Government and ADB. Online training for project staff on disbursement policies and procedures is available at: http://wpqr4.adb.org/disbursement_elearning. Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

38. Disbursements from the ADB loan for contracts of the works and consulting services will be generally through direct payment procedure. Before the submission of the first withdrawal application, MWSS should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is US\$100,000 equivalent. Individual payments below this amount should be paid by the EA and subsequently claimed to ADB through reimbursement, unless otherwise accepted by ADB.

C. Accounting

39. MWSS will maintain separate project accounts and records by funding source for all expenditures incurred on the Project. Project accounts will follow international accounting principles and practices or NGAS as required by the Commission on Audit (COA).

D. Auditing and Public Disclosure

40. **Project financial statements.** MWSS shall (i) maintain separate accounts and records for the Project; (ii) prepare consolidated annual financial statements for the Project in accordance with accounting principles acceptable to ADB; (iii) have such financial statements audited annually in accordance with International Standards on Auditing and with the Government's audit regulations by the Commission on Audit, as an independent auditor acceptable to ADB.

41. The annual audit report for the project financial statements will include an audit management letter and audit opinions which cover (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial framework; (ii) whether loan and grant proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the legal agreements for the project; and (v) the use of the SOE procedures certifying to the eligibility of those expenditures claimed under SOE procedures, and proper use of the SOE procedures in accordance with ADB's Loan Disbursement Handbook and the project documents.

42. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

43. The Government and MWSS have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the project financial statements. ADB reserves the right to require another auditor to review specific activities if the COA report does not satisfy its requirements for certain disclosure/monitoring purposes, or for MWSS to provide additional support to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the Project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

44. **Public disclosure.** Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).¹⁵ After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter and the entity financial statements will not be disclosed.

¹⁵ Available from <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting

45. All contracting will be undertaken in conformity with 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). The issuance of invitations to bid and requests for expressions of interest under advance contracting will be subject to ADB approval. MWSS has been advised that approval of advance contracting does not commit ADB to finance the Project.

46. The Government requested and ADB approved on 5 September 2013, the advance contracting of the works and the consulting service. On 8 September 2013 the advance contracting notice of the works contract was published.

47. The works contract is bid out as a design build contract following a two stage single envelope procedure. The procurement of the works is on-going, with the first stage of the two-stage bidding process competed. Invitations to submit second stage bids were issued and bids are expected to be submitted by 5 March 2016.

B. Procurement of Goods, Works and Consulting Services

48. **Procurement capacity.** The general procurement environment is adequate and MWSS has established permanent Bid and Awards Committee (BAC), a BAC-Technical Working Group (BAC-TWG) and a BAC-secretariat, responsible for all procurement activities of MWSS. Both BAC and BAC-TWG regular receive training on government procurement policies and guidelines. The BAC-TWG is organized for specific projects or for particular procurement activities. BAC-TWG is composed of personnel from financial, legal and technical departments from MWSS.

49. MWSS has recently undertaken foreign- assisted procurement of works: the Angat Water Utilization and Aqueduct Improvement Project, Phase 2, funded by the China Eximbank; and consulting services: New Centennial Water Supply Project; Bulacan Bulk Water Supply Project, and; Rehabilitation, Operation and Maintenance of Auxiliary Turbine Nos. 4 and 5.

50. The current BAC has no experience in procurement following ADB procedures, nor in two-stage bidding processes and limited experience in procuring design and build contracts. The BAC and TWG 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).

51. ADB and the PPTA consultant provide support in the finalization of bidding documents. ADB through OSFMD has provided several days training on preparing bid preparation and evaluation, specific to this project. ADB will continue to provide procurement support through grant-financed experts to assist with the evaluation, negotiation, and awarding procedures of the works and services contracts.

C. Procurement Plan

52. **Procurement plan.** The procurement will involve international competitive bidding for (i) the design and construction of tunnel, appurtenant structures and ancillary facilities; and (ii) the recruitment of supervision consultant. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Annex A.

53. The design and construction of the tunnel will be implemented through a single design build contract. The contract follows international competitive bidding procedure using ADB's Standard Bidding Document (SBD) for Procurement of Plant, Design, Supply and Install (Two-stage Bidding) and Conditions of Contract for Plant and Design-Build, 1st edition 1999 prepared by the Fédération Internationale des Ingénieurs-Conseils (FIDIC). ADB's SBD has been modified to suite a civil works contract.

54. The works contract scope consists of design and build of a new tunnel, approximately 6.3 km long and the finished internal span is approximately 4 meter in diameter. The works include a portal breakout at the inlet and outlet of the tunnel. The tunnel depth is generally between 100 and 150 meter, with a maximum of approximately 200 meter. The depth at the inlet and outlet is approximately 10 and 8 meter, respectively.

D. Consultant's Terms of Reference

55. Consulting firms will be engaged using the quality- and cost-based selection (QCBS) method with a quality:cost ratio of 90:10. The consultant will assist MWSS in carrying out tasks of the Engineer under the Contract with the exception of determining any issues with time or cost implications. The Consultant shall provide all information and analysis necessary for MWSS project manager to make these determinations.

56. The main tasks of the consultant will be: (i) review of detailed engineering design, contract supervision, including contract administration, technical and legal supervision on the construction site, contractor's documentation control and verification, authenticating of payments for the contractor, and preparing reports for the contracting authority; and (ii) capacity building, specifically on gender awareness promotion and training, and implementation of the communication strategy, specifically with regards to livelihood opportunities and awareness of health related risks.

57. The consultant services will be required for 54 months during design and construction, and 12 months during defect notification period. An estimated 762 person-months (98 international, 664 national) of consulting services are required. The outline of the terms of reference for the consulting services is in Annex B.

VII. SAFEGUARDS

A. Environmental safeguards

58. The project is categorized as "B" since the project is not expected to cause irreversible adverse environment impacts. An environmental impact screening was carried and an Initial Environmental Examination (IEE) report prepared. Mitigation measures for identified impacts are included in the Environment Management Plan (EMP). Initial costs for developing and implementing the EMP have been estimated and integrated in the project costs. The IEE follow

a process that complies with ADB's Safeguard Policy Statement (SPS 2009) with supporting justification for Appendix 1, Section 8 regarding protected areas, Philippine laws and regulations, and compliance with the same.

59. The IEE concludes that most of the environmental impacts associated with Tunnel 4 are expected to arise during construction. Potential impacts will be localized and site-specific. Most of the identified impacts can be mitigated to an acceptable level through good site, engineering and construction practices. Operation phase impacts will be mitigated through good asset maintenance practices.

60. The bid document includes the EMP to ensure mitigation of identified environment impacts during construction. GOP environment clearances (i.e., Environmental Compliance Certificate) will be obtained before award of contract. The successful contractor shall be required to prepare and implement a CEMPCE based on the EMP, and include this in his bid. The CEMP will be site specific and address all site and construction management concerns highlighted in the IEE and EMP. The project cost estimate includes a budget of \$1.5 million for implementation of the CEMP. This is included in the works contract as competitive cost item.

61. During the detailed design phase, further consultation is required to address the concerns raised during previous consultations to ensure that all public concerns are updated and publicly acknowledged and incorporated into detailed designs and updated CEMP. Also, during the detailed design, environmental due diligence should be conducted on the key associated facilities. The grievance redress mechanism (to cover all safeguards) shall be established prior to any field activities that may be conducted.

62. The CEMP should be updated during the detail design phase to:

- (i) Update the legislation and administrative arrangements;
- (ii) Incorporate the results of the updated IEE, including further terrestrial and aquatic surveys, and other surveys to be undertaken as indicated by the IEE or the approval requirements of the GOP;
- (iii) Update and/or revise the impacts and mitigation presented herein;
- (iv) Update and/or revise the mitigation and monitoring plans, and;
- (v) Develop institutional capacity building training plans based on the needs.

63. In the event of design deviation, the MWSS through its PMO should immediately: (i) seek the advice of Environmental Management Bureau (EMB) if such design deviation warrants an amendment of the Environmental Compliance Certificate (ECC); and (ii) inform ADB should EMB advice for ECC amendment and finally, (iii) seek ADB's clearance/concurrence for an IEE revision and/or EMP updating, prior to any construction activities.

64. The following institutions are the key players for the environmental management of the Project:

- (i) The MWSS, will be responsible for appointing the proposed Safeguard Group under the PMO-AWTIP, engaging an environmental officer, organizing the Multipartite Monitoring Team¹⁶ (MMT) as required by DENR Administrative Order 30 of 2003¹⁷

¹⁶ The MMT shall be composed of representatives of the proponent and of stakeholder groups, including representatives from concerned LGUs, locally accredited NGOs/POs, the community, concerned EMB Regional Office, relevant government agencies, and other sectors that have been identified during the EIA Study as potentially affected by the various phases of the project.

- (DAO 03-30); and ensuring the procurement of an environment responsible contractor.
- (ii) PMO-AWTIP is responsible for overseeing the implementation of the CEMP/EMP and conditions prescribed in the ECC. The TOR for the Environmental Officer (EO) is presented in IEE Appendix 6.1. (Initial Environmental Examination).
 - (iii) Environment Specialist of the Project Management Consultant will provide technical assistance and guidance to the PMO-AWTIP, particularly its EO, in the implementation of the CEMP and ECC conditions.
 - (iv) ADB will approve any necessary IEE revision and/or CEMP updating. It will review environmental monitoring reports and undertake missions to review the environmental performance of the Project.
 - (v) The Contractor will update the CEMP during the design phase, incorporate the CEMP prescribed environmental considerations in design and implements the CEMP during detailed engineering design and during construction.
 - (vi) Concessionaires (MWCI and MWSI), as operators, will provide qualified environmental officers to work closely with the PMO-AWTIP, commencing at least 3 months prior to construction, and implement the EMP and ECC conditions.
 - (vii) DENR/EMB will review and approve, respectively, the Project's Environmental Impact Screening and conduct review of the monitoring reports from the PMO-AWTIP and MMT.
 - (viii) MMT will conduct the periodic monitoring prescribed in DAO 03-30.
 - (ix) Local Government Units, namely the Municipality of Norzagaray (through its Municipal Planning and Development Office and Municipal Environmental and Natural Resources Office) and Barangays Bigte and San Mateo will provide representations in the MMT.

65. See the Initial Environmental Examination and section IX-B for details on implementation and monitoring arrangements.

B. Land Acquisition and Involuntary Resettlement.

66. The project is categorized as "C" since physical and/or economic displacement and/or land acquisition is not required. The construction and use of the tunnel is within the 60 meter right-of-way, which is titled and owned by MWSS,¹⁷ and situated 50 to 200 meter below the ground surface level. It does not impose any safety risks to any of the existing assets, establishments, surface structures and land use.

67. Likewise, the PPTA confirmed that it is extremely unlikely that any development at the surface will have a negative impact on the tunnel's structural and functional integrity. A due diligence report was prepared documenting the consultations with the households living along the tunnel alignment to inform them of project scope and the absence of need to relocate. Consultations will be continued throughout the project cycle. Any unanticipated impact during implementation will be mitigated in accordance with ADB's SPS 2009.

68. Further due diligence activities will be undertaken during the final design phase when technical design will be finalized to determine any adverse impacts that may then trigger the ADB social safeguards policy. All the documents will be updated in accordance with design

¹⁷ Implementing Rules and Regulations Of Presidential Decree No. 1586, establishing the Philippine Environmental Impact Statement System, EMB- Environmental Impact Assessment and Management Division (EIAMD).

¹⁸ Except for a stretch of 300 meters where the National Housing Authority claims ownership.

change. The grievance redress mechanism (to cover all safeguards) shall be established prior to any field activities that may be conducted.

69. The budget for any land acquisition and resettlement (LAR) activities is included as person months input in the project management consultant's terms of reference. Tasks to be carried out are (i) due diligence validation and inventory update if any and (ii) safeguard compliance monitoring during final design and construction.

70. The following agencies and staff will be responsible to address issues related to land acquisition and resettlement:

- (i) The, MWSS is responsible for appointing the proposed Safeguard Group under the PMO-AWTIP, engaging the social safeguards officer and ensuring defined tasks and responsibilities are being carried out satisfactory.
- (ii) PMO-AWTIP is responsible for overseeing the updated final design, and corresponding changes, if any, as well as the corresponding social impact assessment if required. It shall also prepare IR reports.
- (iii) Social safeguards officer for project implementation will provide necessary inputs as to the updated social impact assessment during detailed engineering, and in case of changes in the design, assess and monitor IR impacts, update the due diligence report in accordance with IR safeguards requirements specified in the ADB Safeguard Policy Statement (SPS 2009), and prepare required monitoring reports for the EA to be submitted to ADB.
- (iv) IR Specialist of the Project Management Consultant will provide technical assistance and guidance to the PMO-AWTIP and social safeguards Officer during the final impact assessment including safeguard monitoring and capability building activities.
- (v) ADB will review and approve all LAR impact revisions and/or updates, and safeguard monitoring reports and undertake missions to review the LAR related activities.
- (vi) Local Government Units, namely, the Municipality of Norzagaray (through its Municipal Planning and Development Office) and Barangays Bigte and San Mateo will provide necessary support and facilitate the lodging and resolution of complaints of APs as part of the Grievance Committee.

C. Indigenous Peoples

71. The project is categorized as "B" since the planned contractors' work area of one-hectare, the location of the intake point and about 200m meter length of tunnel alignment is part is part of the claimed ancestral domain area by the IP community, Dumagats. 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 people (IP) communities living along the tunnel and an Indigenous People Plan (IPP) was prepared, outlining measures to mitigate these temporary disturbances during construction. The IPP will be updated in accordance with detailed engineering design available and will be posted on ADB's website. Consultations will be continued with IPs in accordance with ADB's SPS 2009.

72. The temporary disturbances include: (i) clearance of the sites, (ii) increased water turbidity due to diggings, and (iii) limiting movement of IPs by temporarily closure of the current boat landing and passageway used by residents to transport fish catch and students from upstream settlements. To mitigate these impacts the cleared areas will be re-vegetated and restored to its original condition after construction; while alternative boat landing and pathways

will be made available for which routes have already been identified in consultation with IP communities and agreed upon. Water turbidity will be minimized, by (i) building cofferdams when constructing inlet works, (ii) using combination of perimeter controls at spoil disposal areas or stockpiles of aggregate materials, e.g. silt fences, sediment basins, sandbags, earth berm, (iii) by storing and re-using pumped-out water from the tunnel and (iv) treatment of water before discharge. This is to be included in the EMP as part of bid documents. The grievance redress mechanism (to cover all safeguards) shall be established prior to any field activities that may be conducted.

73. Further updating of socio-economic profile of IP communities and potential impact during final design is needed as input for updating the IP Plan and in preparation for the conduct of FPIC with IP communities during final design phase.

74. The following agencies and staff will be responsible to address issues related to indigenous people:

- (i) The, MWSS, as the Executing Agency (EA) will be responsible for appointing the proposed Safeguard Group under the PMO-AWTIP, engaging the social safeguards officer and ensuring defined tasks and responsibilities are being carried out satisfactory.
- (ii) PMO-AWTIP is responsible for overseeing the updated final design, and corresponding changes, if any, as well as the corresponding social impact assessment as required. It shall also prepare IP reports.
- (iii) Social safeguards officer for project implementation will provide necessary inputs to update social impact assessment during detailed engineering, and for any changes in the design, assess and monitor IP impacts, update IPP in accordance with the ADB SPS 2009, and prepare required monitoring reports for the EA to be submitted to ADB.
- (iv) IR Specialist of the Project Management Consultant will provide technical assistance and guidance to the PMO-AWTIP, particularly its social safeguards Officer in the final impact assessment and safeguard monitoring and capability building activities.
- (v) ADB will approve any IP impact revisions and/or updates, review safeguard monitoring reports and undertake missions to review the IP related activities under the project.
- (vi) National Commission on Indigenous Peoples (NCIP) will facilitate the conduct of Free Prior and Informed Consent (FPIC) activity, review and approve updated IPP and conducts monitoring visits for the implementation of the IPP and monitoring reports from PMO-AWTIP.
- (vii) Local Government Units, namely, the Municipality of Norzagaray (through its Municipal Planning and Development Office) and Barangays Bigte and San Mateo will provide necessary support and facilitate the lodging and resolution of complaints of APs as part of the Grievance Committee.

75. See the Indigenous People Plan and section IX-B for details on implementation and monitoring arrangements.

VIII. GENDER AND SOCIAL DIMENSIONS

76. A poverty and social assessment was conducted in the project areas during project preparation to examine their socio-economic characteristics. It included a poverty, social, and

gender analysis, identifying issues, needs and priorities of population groups within the project scope in developing the project's poverty reduction and social strategy.

77. A Summary Poverty Reduction and Social Strategy (SPRSS) has been prepared to present project benefits and mitigation measures to address social impacts and enhance distribution of project benefits. The project will have significant positive impacts by ensuring the integrity and sustainability of water source for 14 million residents in Metro Manila concession areas and retention of the socio-economic benefits that accrues to consumers including improved health, hygiene and sanitation, and reduced time poverty for women. Further, it will enhance benefit capture and mitigate potential social risks to source community residents through provision of (i) public awareness on business opportunities and benefits that will be generated during project construction; (ii) 50% preferential targeting of source community residents for unskilled jobs in civil works construction; (iii) integrating women's needs and needs in the development of traffic route planning and management, and road safety programs; and (iv) awareness campaigns to promote public awareness and training of source communities, including women and contract workers on the risks of alcohol, drugs, gambling and STDS and HIV/AIDS transmission and prevention, with minimum 50% female participation. See also the Summary Poverty Reduction and Social Strategy and Poverty and Social Analysis.

78. A gender analysis was also conducted during project preparation to determine opportunities for gender mainstreaming support actions for the project. Based on the analysis, the Project is categorized as category III – some gender elements. Gender features have been included in the Risk Assessment and Risk Management Plan to address gender concerns and risks¹⁹. In addition to the social inclusion features identified above, it will also include collection of sex disaggregated data for input and usage in regular project monitoring and review of gender design measures in quarterly reporting, mid-term review and Project Completion Report.

79. The PMO-AWTIP will be responsible for ensuring social and gender related measures are implemented and monitored. It will be assisted by the Project Management Consultants and will partner as appropriate other stakeholders including the civil works contractor, CPF, LGUs, local barangays, MPWH, local health authorities, NGOs and credit agencies. MWSS will appoint a social development/gender expert, who will work in conjunction with an international social and gender specialist (intermittent) in the consultant's team. The project will draw upon the Risk Assessment and Risk Management Plan to support identified social inclusion measures and human resource needs. The Stakeholder Communication Strategy, presented in Section IX-E, describes how various stakeholders will be engaged during project implementation. See Section IX-B on how the gender and social dimensions will be monitored.

¹⁹ 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.

Key Activities with Milestones

Output 1. New tunnel constructed

- 1.1 Approval of bid documents (Feb 2015)
- 1.2 Issuing of invitation to bid (Feb 2015)
- 1.3 Contracting of works (Jun 2016)
- 1.4 Completion of works (Dec 2021)

Output 2. Capacity building support provided

- 2.1 Approval of terms of reference (Feb 2016)
- 2.2 Issuing request for proposal (Feb 2016)
- 2.3 Contracting of services (Dec 2016)
- 2.4 Gender awareness training (Jan–July 2017)
- 2.5 Community consultations and training (Jan–Dec 2017)
- 2.6 Completion of services (Dec 2021)

Inputs

ADB:	\$123.3 million
Government:	\$10.7 million

Assumptions for Partner Financing

Not applicable.

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.

B. Monitoring

80. **Project performance monitoring.** The monitoring of project performance is done through the agreed indicators as listed in the design and monitoring framework (DMF). The performance and achievement of the contractor is monitored by project management consultants and EA, and presented to ADB through quarterly monitoring reports. Before start of physical construction, the consultant will establish a monitoring framework, including baseline indicators reflecting both expected cumulative physical progress and disbursement levels in relation to passed time of construction. Any deviations from these projections will be reported, including causes and proposed measures to make up for any delay. Encountered unforeseen circumstances, that may result in serious delays or require contract variations, will be reported immediately to the EA and ADB. The recruitment of the project management consultants and the contractor will be supervised by ADB, by adhering to ADB's procedures for recruitment of consultants and procurement of works.

81. **Compliance monitoring.** The Project's progress will be reviewed jointly by the EA, and ADB semi-annually. A comprehensive midterm review will be carried out by the EA, and ADB two years after start of the Project. The midterm review will:

- (i) review of institutional, administrative, organizational, technical, environmental, social, economic, and financial aspects of the project based on the assumptions and risks included in the design and monitoring framework;
- (ii) review of covenants to assess whether they are still relevant or need to be changed, or waived due to changing circumstances;
- (iii) review of the performance of the contractor, EA and operator in complying with, or adhering to, the EMP;
- (iv) review of the performance of the contractor, EA and operator in complying with, or adhering to, the IPP;
- (v) assess the need to restructure or reformulate the project and the effects of this on the immediate objectives (outputs and outcome) and long-term goal (impact) of the project;
- (vi) update the project's design and monitoring framework where restructuring or reformulation is necessary or its immediate objectives will change; and
- (vii) update disbursement projections for the remaining duration of the construction.

82. The compliance milestones are:

- (i) Safeguard unit is established and staffed one month following loan effectiveness;
- (ii) EMP, IPP including LAR due diligence are updated during detailed design;
- (iii) CEMP is prepared by contractor and submitted for ADB's approval prior to construction.

83. **Environmental monitoring** will cover: (i) ambient air quality; (ii) noise levels; (iii) surface water quality; (iv) groundwater quality; (v) community health and safety prior to construction and during construction and operation; and (vi) workers' health and safety during construction and operation (maintenance and repair). A detailed environmental monitoring plan, including indicators, performance levels, sampling methods and data sources, is in the draft EMP (linked document 11).

84. The monitoring system is as follows:

- (i) The contractor will ensure that construction impacts on environment and its

- personnel are within the acceptable limits set in the CEMP;
 - (ii) The EA ensures measured data and contractor's performance is in compliance with the EMP and ECC and continues updating the EMP for sustained responsiveness to project construction, operations and impacts.
 - (iii) An external multipartite monitoring team, composed of representatives of MWSS, CPF, Bgry San Mateo LGU, Bgry Bigte LDU, EMB CO, relevant government agencies checks compliance with EMP and reviews proposed EMP updates.
 - (iv) DENR checks compliance to the ECC and effectiveness of environmental measures
 - (v) ADB ensures that construction and operation activities comply with ADB policies and safeguards.
85. Environmental Monitoring Reports (EMRs) shall be prepared as follows:
- (i) Monthly, by the Contractor during detailed design and construction and by the concessionaires during operation, to be submitted to the PMO-AWTIP, to include, at least: (i) physical progress of the Subproject; (ii) mitigation measures implemented in line with the CEMP; (iii) grievances received, resolved, closed and those directed to other mechanisms; and (iv) if any, engineering investigation and corrective actions after a seismic or extreme weather event.
 - (ii) Quarterly, by the PMO-AWTIP, incorporating the monthly reports of contractor or concessionaires into the overall quarterly progress report of Project. In addition, to include: (i) feedbacks from informal random interviews with affected communities; (ii) findings from regular inspections and unannounced spot checks; and (iii) assessment of the performance of contractor or concessionaires.
 - (iii) Semi-annually during detailed design and construction and annually during operation until loan closure or as agreed, by the PMO-AWTIP to be submitted to the ADB to fulfill the environmental agreement in the loan. The semi-annual and annual EMRs will not only report on the progress and results of environmental monitoring and compliance of the CEMP implementation but also: (1) assess the effectiveness of instituted measures; (2) point out violations, if any; (3) assess and recommend corrective actions; and (4) cite any coordination made for corrective actions and, if applicable, certifications for having instituted them effectively. It shall also feature any innovative mitigation measures applied by the contractor or concessionaires, and other lessons learned in CEMP implementation.
86. **IPP monitoring** will ensure effectiveness of the mitigation of temporary disturbances during construction to IPs that live around the construction sites. Most notably these disturbances are obstruction of passage, noise due to blasting, and turbidity of surface water, commonly used for washing and bathing. Mitigation measures have been identified and will be incorporated in the contractor's contract, partly through the EMP. Sex-aggregated monitoring will be carried out as outlined in the draft IPP (linked document 12).
87. The monitoring system is as follows:
- (i) The EA ensures the contractor's performance is in compliance with the contract and appropriate mitigation measures are in place. During IPP update sex-aggregated baseline data will be collected;
 - (ii) An external multipartite monitoring team composed of representatives of NCIP,

MWSS, LGU and NCIP checks compliance with updated IPP; and

- (iii) ADB ensures that construction and operation activities comply with ADB policies and safeguards.

88. IP Monitoring Reports (IPMRs) shall be prepared as follows:

- (i) The Contractor during detailed design and construction and by the concessionaires during operation, submit monthly report to the PMO-AWTIP, to include, at least: (i) physical progress of the Subproject; (ii) mitigation measures implemented in line with the contract and IPP; (iii) grievances received, resolved, closed and those directed to other mechanisms; and (iv) if any, engineering investigation and corrective actions after a seismic or extreme weather event;
- (ii) The PMO-AWTIP, incorporates the monthly reports of contractor or concessionaires into the overall quarterly progress report of Project. In addition, to include: (i) feedbacks from informal random interviews with affected communities; (ii) findings from regular inspections and unannounced spot checks; and (iii) assessment of the performance of contractor or concessionaires.
- (iii) The PMO-AWTIP, semi-annually during detail design and construction, and annually during operation until the loan closure or as agreed to be submitted to ADB to comply with the IP safeguard measures in the loan. The semi-annual and annual IPMRs will not only report on the progress and results of IP monitoring and compliance of the contract and IPP implementation but also: (1) assess the effectiveness of instituted measures; (2) point out violations, if any; (3) assess and recommend corrective actions; and (4) cite any coordination made for corrective actions and, if applicable, certifications for having instituted them effectively. It shall also feature any innovative mitigation measures applied by the contractor or concessionaires, and other lessons learned in IPP implementation.

89. **Gender and social dimensions monitoring.** Gender and social dimensions will be monitored through regular project performance monitoring. Specific indicators and targets have been included in the DMF. Monitoring of the gender and social design measures, indicated in the SPRSS and Stakeholder Communication Strategy, will be reflected in quarterly project progress reports, midterm review, and project completion report. The EA will ensure that civil work contracts and bidding documents under the project include provisions to comply with the proposed social and gender design measures.

90. **External monitoring.** This will be undertaken by the NCIP Office in coordination with MWSS, LGU and IP Association. Findings will be reported to MWSS, LGUS and IP associations for any recommendations that will be crucial to the achievement of objectives of the IPP. NCIP's mandate is to monitor the progress of the Memo of Agreement (MOA) signed between the IP organization and MWSS/CPF. It will determine the effects and impact of programs and services on the socio-economic conditions of IP communities. It also looks at the relevance and appropriateness of intervention based on their culture and needs. The effects of the IPP are measured against the baseline profile of the IP communities affected by the project and identify changes in their living conditions and quality life. It answers the question on whether there were improvements in the living conditions of the IPs as compared to pre-project conditions.

C. Evaluation

91. Evaluation by EA and ADB will take place quarterly based on the submitted consultant's report, semi-annually as part of the progress meetings and site visit, and during mid-term

review. Assessment of implementation progress will be reviewed and baseline projections revised and agreed upon. Effects on the projects immediate objectives (outputs and outcome) and long-term goal (impact) will be assessed. Within 6 months of physical completion of the Project, MWSS will submit a project completion report (PCR) to ADB. The PCR will assess the projects relevance, efficiency, effectiveness, sustainability, impact, flowed by lessons and recommendations.

D. Reporting

92. MWSS will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the Project. To ensure projects continue to be both viable and sustainable, project accounts and the executing agency AFSs, together with the associated auditor's report, should be adequately reviewed.

E. Stakeholder Communication Strategy

93. Project affected communities and other stakeholders are consulted during project preparation and implementation and participate in project formulation, design, preparation, implementation, and monitoring and evaluation.

94. A stakeholder analysis was undertaken in preparing the Stakeholder Communications Strategy (SCS) to identify key parties that have a stake or interest in the project: government and their representatives (LGU, DENR, and NCIP); business sector and microenterprises; civil society, NGOs and community based organizations; and affected residents, women and vulnerable groups.

95. The SCS is intended to ensure inclusiveness, transparency, timeliness and the meaningful participation of stakeholders in the project. Essentially, it provides a communication platform for all key stakeholders particularly between the project's affected groups and the executing agency to ensure that the former's views and interests are fully integrated in the project design, implementation and impacts through regular and a two-way exchange of information.

96. The SCS ensures that vulnerable groups, such as the poor, elderly, indigenous and ethnic groups and women, who risk being marginalized, are provided with opportunities for communication and feedback during sub-project design and implementation. In this way, the Strategy serves to inform and support community development, enhance government executing agency's capacity to manage project outcomes, enhance project benefits and mitigate negative impacts.

97. Key informant interviews, focal group discussions and consultation meetings were undertaken in the early stage of the project preparation and as part of the socio-economic survey (SES). The analysis was focused on their interests, perception of the project, current resources and their mandate. Solutions to perceived problems were also discussed.

98. The key stakeholders, their interests, key messages, means of communication, and timeline of delivery during the project cycle, are presented in table 4.11. The Stakeholder Communications Strategy is in table 4.12.

Table 4.11: Outcome of stakeholder consultations

Stakeholder Group	Stakeholder Interest	Perception of Problem	Resources	Mandate
Government				
MWSS	Proponent of the Project, recipient of ADB loan	Angat transmission line old and no longer efficient	ADB Loan	Regulatory office for the delivery of water service by the two concessionaires
Provincial government)	Stake in the provision of basic services and project benefits accruing to its constituents	Transmission line needs improvements /safety during construction and operations	Provincial budget	Deliver basic services and generate revenues
Municipal government	Stake in the safety of its constituents/ project benefits/ business tax	Transmission line needs improvements/safety during construction and operations	Municipal Budget	Deliver basic services and generate revenues
Barangay	Stake in the safety of its constituents/ project benefits	Transmission line are old/benefits have not been enjoyed by barangay/ safety during construction and operations	Barangay Budget	Deliver basic services and generate revenues
Sanguniang Kabataan(SK) Youth (San Mateo)	Support goal of the project./ continue to provide programs and services to youth	Not sure but hope workers will come from the barangay If people will be affected, they should be provided support	Regular budget for SK	Youth Leadership and development
Sanguniang Kabataan(SK) Youth (Bigte)	Support goal of the project./continue to provide programs and services to youth	Project will cause disturbance during construction, but may also bring benefits	Regular budget for SK	Youth Leadership and development
DENR	Support goals of the project in sustaining transmission lines for efficient water supply	Activities endanger raw water source	Agency budget and Staff	Responsible for overall management of resources and environment
NCIP	Support goals of the project in sustaining transmission lines for efficient raw	Potential displacement of IPs by the project/ marginalization of IPs	Agency Budget and Staff	Ensure IP communities welfare

Stakeholder Group	Stakeholder Interest	Perception of Problem	Resources	Mandate
	water supply			
Business Sector				
CPF/Concessionaires	User of raw water/operation and maintenance of transmission of facilities after construction	Transmission line no longer efficient /how to secure Right of Way from encroachers	Company Budget	Monitor/maintain Common purpose facilities
Sari-Sari Store Owners/traders	Support goals of the project in sustaining transmission lines for efficient raw water supply	Capture economic benefits during construction/not sure if able to enjoy project benefits/ others may be displaced	Revenue from business	-
Water vendor	Sustain potable water business in the absence of water piped system	Will lose some clients/business if some APs will be relocated	Revenue from business	Concession agreement with Water Districts for truck delivery of potable water supply
Civil Society/POs				
Senior citizen's (San Mateo)	Share project goal of the project in sustaining water supply	-Transmission lines are old and have not benefitted from them. -Need for potable water supply have not been addressed despite water supply coming from their own resources, the lpo dam. -Perceives direct project benefits only for Metro Manila residents.	Membership fees/donations	-
Senior citizen's (Bigte)	Share project goal of the project in sustaining water supply	-Old transmission lines may be risky for residents. -Water supply is still a problem for the community residents. -No perceived benefits directly accruing to them	Donations	-
Kababaihang Lingkod Barangay	-Seeks project benefits for its members in providing loan/ assistance as well as programs	-Concern for safety during construction. -Potable water supply is a long problem for everyone.	Membership fees/grant from council man	-

Stakeholder Group	Stakeholder Interest	Perception of Problem	Resources	Mandate
		-No benefit from project/MWSS do not pay taxes here.		
Home Builders Alkansya Multi Purpose Coop	- Seeks project benefits for its members in providing loan /assistance as well as programs	-May affect some people during construction due to potential traffic/ accidents -What benefits will bring for members and the community	Members capital build up /grant	
Bigte Women's Power Association	-Support project goal and seek benefits for its members /continue provision of livelihood and capital assistance as well as training for its members.	-Potential risks and safety of people during construction and after during implementation -Project benefits to its members/ livelihood assistance -Big concern for proper spoils and waste materials disposal	Grant from congressman	-
Homeowners / Living along the right-of-way	Support goal of the project and seeks benefits for its members	Transmission lines are old, might be risky for residents	Volunteer/labour	-
Women	Support goal of project/project benefits	-Concern for safety during construction. -Limited employment/source of income. -Not sure what project benefits will be enjoyed but optimistic for possible economic and livelihood opportunities.	Volunteer/ advocacy	-
Virgin de las Flores Church	Support goal of the project/ conduct spiritual seminars for parishioners	-Potential risks of accidents and traffic during construction. -Not sure what benefit we will get from the project.	Parishioners donation	-
Community residents (IPs and non-IPs)	Support goal of the project /seeks	-Concern for potential risks and	Volunteer/labour	-

Stakeholder Group	Stakeholder Interest	Perception of Problem	Resources	Mandate
	project benefits	accidents and safety during and after construction. -Not connected to a water supply system, yet the transmission line traverses our barangay		

AP= Affected People; CPF= Common Purpose Facility; DENR=Department of Environment and Natural Resources; IP=Indigenous People; MWSS=Metropolitan Water and Sewerage System; NCIP=national Commission on Indigenous Peoples.

Source: PPTA consultants

Table 4.12: Stakeholder Communications Strategy

AWTIP STAKEHOLDERS COMMUNICATIONS STRATEGY							
Objectives	Key Risks and Challenges	Main Stakeholders	Messages	Means of Communication	Timeline	Responsibility	Resources
<p>Ensure a regular flow of reliable information to enhance stakeholder support and feedback on implementation.</p> <p>Ensure a two way communication flows, information sharing and feedback mechanism between EA/IA and stakeholders and affected peoples to ensure social inclusion, effective risk mitigation and maximisation of flow of project benefits to target groups including local residents, poor and women</p>	<p>Trust of information</p> <p>Language/cultural barriers</p> <p>Literacy level</p> <p>Level of coverage and outreach</p> <p>Managing expectations</p> <p>Lack of familiarity with water supply transmission systems and underground tunnel construction technology</p>	<p>Source communities (IPs, APs, low income and poor households, women, disadvantaged groups, senior citizens, children), civil society/NGOs, business community/small-micro business owners, LGUs/barangay councils, contract workers, civil contractor, potable water trucking contractor, CPF and government departments (DENR, DPWH, local health authority).</p>	<p>Project scope and design (transmission rehabilitation and does not provide potable piped water to the source communities), key project benefits, implementation arrangements and schedule of civil works.</p> <p>Main project impacts (positive, negative, social, gender, health and environmental).</p> <p>Key risks and planned mitigation measures (local hiring for construction employment, health and traffic/road risks).</p> <p>ADB processes, principles and mechanisms for social and gender inclusive projects.</p>	<p>Workshops, seminars and public meetings with stakeholders.</p> <p>IEC campaigns (English and Tagalog) through information leaflets and publications, local media and public notices in partnership with civil society/NGOs and business sector.</p> <p>FGD and local community/barangay consultations</p> <p>Socio-economic survey</p> <p>Cultural/religious events</p>	<p>From project outset through to project implementation.</p>	<p>MWSS-Office of Special Projects (PMO-AWTIP)</p> <p>Project management consultant</p> <p>LGUs/barangay councils</p> <p>Civil contractors</p> <p>Government departments</p>	<p>Cost of meetings and travel from funds of PMO-AWTIP & PIC.</p> <p>Cost of IEC materials funded from project budget</p>
<p>Ensure a regular flow of reliable information to enhance stakeholder support and maximize positive project impact on the business community and alternative</p>	<p>Trust of information</p> <p>Language/cultural barriers</p> <p>Literacy level</p> <p>Level of coverage and outreach</p> <p>Managing</p>	<p>Business community in Bigte/San Mateo, microenterprises and small business operators and traders including poor people, women and FHHs</p>	<p>Project construction and support services will generate benefits for local business and livelihood opportunities for poor people in Bigte and San Mateo</p>	<p>Public meetings, seminars and consultations with the business community and interested parties including women and poor people</p> <p>IEC campaigns with appropriate</p>	<p>From the project outset and during project implementation</p>	<p>PMO-AWTIP, LGUs/local barangays and local business community</p> <p>Project management consultant</p>	<p>Meeting costs, IEC information materials and leaflets to be funded from PMO and Project management consultant budgets</p>

AWTIP STAKEHOLDERS COMMUNICATIONS STRATEGY							
Objectives	Key Risks and Challenges	Main Stakeholders	Messages	Means of Communication	Timeline	Responsibility	Resources
livelihood for poor people and women	Expectations Timing			information materials/leaflets			
<p>Ensure a regular flow of reliable information to change stakeholder behaviour</p> <p>Ensure a two way communication flows, information sharing and feedback mechanism between EA/IA and stakeholders and affected peoples to ensure social inclusion, effective risk mitigation and maximisation of flow of project benefits to target groups including local residents, poor and women</p>	<p>Trust of information</p> <p>Language/cultural barriers</p> <p>Literacy level</p> <p>Level of coverage and outreach</p>	<p>Residents of Bigte and San Mateo especially road side dwellers</p> <p>Motorists</p> <p>Women and school children</p> <p>Business sector/microenterprises/sari sari store owners</p> <p>Public transport operators (tricycles, jeepneys, public buses, mini-vans)</p> <p>LGUs/local barangay officials</p>	<p>Ensure awareness of the increased road traffic during construction and the associated traffic hazards and safety risks on the local people, travelling public and motorists including risks on business losses for local traders, the mitigation measures in terms of safety driving, citizens road safety conduct, road signs and compliance/enforcement.</p>	<p>Public meetings and consultation with stakeholders</p> <p>IEC campaigns with production of information materials/leaflets, media, advertisements and posters and road-side signboards</p> <p>Safety driving training for construction workers and service companies</p>	From project outset and during project implementation	<p>PMO-AWTIP</p> <p>Project management consultant</p> <p>MPWH</p> <p>Local police</p> <p>Local residents</p> <p>LGUs/local barangays</p> <p>Schools/kinder gardens</p>	<p>Cost of meetings, information leaflets and IEC information materials to be funded from PMO and Project management consultant budgets</p>
<p>Ensure a regular flow of reliable information to distil fears among APs and informal settlers on displacement from the ROW and promote understanding of value of transmission lines</p>	<p>Trust of information</p> <p>Language/cultural barriers</p> <p>Literacy level</p> <p>Level of coverage and outreach</p> <p>Lack of familiarity with water supply</p>	<p>APs/informal settlers living on ROW</p>	<p>APs and informal settlers living on the ROW must understand they will not be displaced and resettled as a result of the project.</p> <p>Ensure understanding of the project and value of transmission lines in raw water delivery.</p> <p>Security of ROW will be</p>	<p>Public meetings and community consultations.</p> <p>Media and leaflets and public notices</p> <p>Regular door to door visits by CPF security personnel and promotion of community support for security of ROW</p>	From project outset and on-going.	<p>PMO-AWTIP, and CPF, LGUs/local barangays, local Police</p> <p>Project management consultant</p>	<p>Funding from CPF's annual budget</p>

AWTIP STAKEHOLDERS COMMUNICATIONS STRATEGY							
Objectives	Key Risks and Challenges	Main Stakeholders	Messages	Means of Communication	Timeline	Responsibility	Resources
and security of ROW	transmission systems and underground tunnel construction technology		enhanced so no future encroachment will be allowed.				
Ensure a regular flow of reliable information to enhance stakeholder support	Trust of information Language/cultural barriers Literacy level Level of coverage and outreach	Residents of Bigte and San Mateo including the Province of Norzagaray in Bulacan LWDs/LGUs/local barangays CPF	The source communities in Bigte and San Mateo including IPs and APs potable piped water needs is outside the scope of AWTIP. The source communities of Bigte and San Mateo and the whole Province of Bulacan's potable water needs will be provided for through the Bulacan Bulk Water Project to be implemented through a PPP water concession under an agreement between MWSS and Province of Bulacan. Phase 3 to be ready by 2020 will include Bigte and San Mateo.	Public meetings and consultations, IEC campaign, media and public advertisements	On-going	PMO-AWTIP Project management consultant CPF	Cost of meetings, information materials production and dissemination from MWSS budget.
Ensure a regular flow of reliable information to promote project success	Trust of information Language/cultural barriers Literacy level Level of coverage and outreach	Beneficiary water end users in the Metro Manila water concession areas.	Metro Manila water concessionaires, Maynilad and Manila Water, will continue to provide lifeline tariffs and social/livelihood programs in support of the poor and vulnerable groups.	Community meetings and consultations with poor people and communities, information materials on CSR, electronic media, print media, advertisements and water concessionaires	On-going	Maynilad and Manila Water MWSS	Part of the water concessionaires on-going community service programs funded from their annual budgets

AWTIP STAKEHOLDERS COMMUNICATIONS STRATEGY

Objectives	Key Risks and Challenges	Main Stakeholders	Messages	Means of Communication	Timeline	Responsibility	Resources
				reports			
<p>Ensure a regular flow of reliable information to change stakeholder behaviour</p> <p>Ensure a two way communication flows, information sharing and feedback mechanism between EA/IA and stakeholders and affected peoples to ensure social inclusion, effective risk mitigation and maximisation of flow of project benefits to target groups including local residents, poor and women</p>	<p>Trust of information</p> <p>Language/cultural barriers</p> <p>Literacy level</p> <p>Level of coverage and outreach</p>	<p>Women and men in the source communities of Bigte and San Mateo</p> <p>Youth</p> <p>Indigenous peoples</p> <p>Construction labourers and management</p>	<p>Awareness and education on project risks for men and women including STDs/HIV/AIDs, communicable diseases, gambling, drugs and alcohol consumption.</p>	<p>Public meetings, consultations and awareness training</p> <p>IEC campaign and information materials including pamphlets, leaflets, posters and local media.</p> <p>Company policy on restriction of alcohol consumption at camp site.</p> <p>Local churches</p>	<p>Project outset and during project implementation.</p>	<p>PMO-AWTIP</p> <p>Project management consultant</p> <p>LGUs/barangay councils</p> <p>Civil contractors/services companies</p> <p>NGOs/local churches</p>	<p>Meeting and consultation costs, cost of leaflets and IEC information materials, media costs, etc., funded from PMO and Project management consultant budgets</p>

AWTIP STAKEHOLDERS COMMUNICATIONS STRATEGY

Objectives	Key Risks and Challenges	Main Stakeholders	Messages	Means of Communication	Timeline	Responsibility	Resources
<p>Ensure a regular flow of reliable information to enhance government support and ensure project success.</p> <p>Ensure two way communication, information flow and feedback.</p>	<p>Trust of information</p> <p>Recruitment of skilled/experienced personnel in PMO/ Project management consultant</p> <p>Language/cultural barriers</p> <p>Level of coverage and outreach</p>	<p>MWSS-PMO and Project management consultant</p>	<p>Clear understanding of project objectives, outputs, outcomes and impact, design, implementation, monitoring, funding, budget and schedule of works.</p> <p>Implementation of national and local government policies and development priorities.</p> <p>Effective design and implementation of project components including gender and socially inclusive measures.</p> <p>Ensure appropriate compliance with relevant local and international standards, best practices and regulatory context.</p> <p>Ensure the needs and aspirations of source communities, indigenous peoples, affected peoples, poor and vulnerable groups are incorporated and addressed.</p>	<p>Workshops and inter-government consultation and public consultations on project design, implementation and monitoring.</p> <p>IEC campaigns and community awareness campaigns on project benefits, risk and mitigation measures and social inclusion/gender measures.</p>	<p>Project outset and during project implementation.</p>	<p>PMO-AWTIP and Project management consultant</p>	<p>MWSS budget for PMO</p> <p>Project management consultant budget</p>

AWTIP STAKEHOLDERS COMMUNICATIONS STRATEGY							
Objectives	Key Risks and Challenges	Main Stakeholders	Messages	Means of Communication	Timeline	Responsibility	Resources
<p>Ensure a regular flow of reliable information to enhance government support and project success.</p> <p>Ensure two way communication, information flow and feedback.</p>	<p>Trust of information</p> <p>Language/cultural barriers</p> <p>Level of coverage and outreach</p> <p>Managing expectations</p>	<p>Other Government Departments (MPWH, DENR, local health authorities)</p> <p>CPF</p> <p>Manila Water Concessionaires</p>	<p>Clear understanding of project objectives, outputs, outcomes and impact, design, implementation, monitoring, funding, budget and schedule of works.</p> <p>Implementation of national and local government policies and development priorities.</p> <p>Effective design and implementation of project components including gender and socially inclusive measures.</p> <p>Ensure appropriate compliance with relevant local and international standards, best practices and regulatory context.</p> <p>Ensure the needs and aspirations of source communities, indigenous peoples, affected peoples, poor and vulnerable groups are incorporated and addressed.</p>	<p>Workshops and inter-government consultation and public consultations on project design, implementation and monitoring.</p> <p>IEC campaigns and community awareness campaigns on project benefits, risk and mitigation measures and social inclusion/gender measures.</p>	<p>Project outset and during project implementation.</p>	<p>PMO-AWTIP</p> <p>Project management consultant</p> <p>Government Departments</p> <p>LGUs/local barangays</p> <p>CPF</p> <p>Contractors/services providers</p>	

ADB = Asian Development Bank; APs = affected peoples; AWTIP = Angat Water Transmission Improvement Project; CPF = common purpose facility; COBP = Country Operations Business Plan; CPS = Country Partnership Strategy; DENR = Department of Environment and Natural Resources; DMF = design management framework; EA = executing agency; FHH = female headed household; GAP = gender action plan; IA = implementing agency; IPs = indigenous people; IEC = information, education and communication; PMO = Project Management Office; LWD = local water district; LGU = local government unit; MDG = millennium development goals; MPWH = Ministry for Public Works and Highways; MWSS = Metropolitan Waterworks Sewerage System; NCR = national capital region; PCR = project completion report; PPP = public private partnership; NGO = non-government organisation; PAM = project administration manual; SCS = stakeholder communication strategy; STD = sexually transmitted disease; ROW = right of way
Source: PPTA consultants

X. ANTICORRUPTION POLICY

99. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the Project.²¹ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all Project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the Project.²²

100. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the Project.

XI. ACCOUNTABILITY MECHANISM

101. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.²³

XII. RECORD OF PAM CHANGES

²¹ Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

²² ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

²³ For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

PROCUREMENT PLAN

Basic Data

Project Name: Angat Water Transmission Improvement Project	
Project Number:	Approval Number:
Country: PHILIPPINES	Executing Agency: N/A
Project Financing Amount: \$134 million ADB Financing: \$123.3 million	Implementing Agency: Metropolitan Waterworks and Sewerage System
Date of First Procurement Plan {loan (grant) approval date}:	Date of this Procurement Plan: {dd / mm / year}

A. Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works		
Method	Threshold	Comments
International Competitive Bidding (ICB) for Works	\$5,000,000	

Consulting Services	
Method	Comments
Quality and Cost Based Selection (QCBS)	Quality : cost ratio is 90:10

2. Goods and Works Contracts Estimated to Cost \$1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Procurement Method	Review (Prior / Post)	Bidding Procedure	Advertisement Date (quarter/year)	Comments ⁷
AWTIP-ICB-CW001	Ipo to Bigte Tunnel No.4	\$98.4 m	ICB	Prior	2-stage, 1 envelope	Q1/2015	SBD for Plant, Design, Supply and Install (modified for works) FIDIC Conditions of Contract for Plant and Design-Build, 1st edition 1999

3. Consulting Services Contracts Estimated to Cost \$100,000 or More

The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Recruitment Method	Review (Prior / Post)	Advertisement Date (quarter/year)	Type of Proposal	Comments
AWTIP – CSC – CM001	Contract management and works supervision	\$6.0 m	QCBS	Prior	Q1/2016	FTP	International and national expertise Quality:cost ratio 90:10

B. List of Awarded and On-going, and Completed Contracts

The following tables list the awarded and on-going contracts, and completed contracts.

1. Awarded and Ongoing Contracts

Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Comments ¹

¹ Indicate the Contractor's name and the contract signing date.

Package Number	General Description	Estimated Value	Contract Value	Recruitment Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Comments ²

² Indicate the Consulting Firm's name and the contract signing date.

2. Completed Contracts

Goods and Works								
Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Date of Completion	Comments

Consulting Services								
Package Number	General Description	Estimated Value	Contract Value	Recruitment Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Date of Completion	Comments

ANGAT WATER TRANSMISSION IMPROVEMENT PROJECT
PROJECT IMPLEMENTATION TECHNICAL ASSISTANCE
Detailed Terms of Reference for Consultancy Services

1. INTRODUCTION

1. The Angat Water Supply Transmission Improvement Project (the Project) will assist the Metropolitan Waterworks and Sewerage System (MWSS) in securing and strengthening its water supply system that serves 14 million inhabitants of Metro Manila, through the construction of a new raw water transmission tunnel (number 4) under a design-build contract. The Asian Development Bank (ADB) is expected to provide a loan to the Government of the Philippines to finance the construction of the Project which is expected to commence in 2014.

2. An international consulting firm (the Consultant) is required to assist MWSS, the executing agency for the Project, in implementing and managing the Project. The Consultant will provide specialized services through a team of international and national consultants as described in these terms of reference.

3. The Consultant is expected to commence its service early-2015 when works are expected to be contracted.

II. BACKGROUND

4. Angat reservoir²⁴ is the main source of drinking water supply for Metro Manila (Manila), which provides about 97% of Manila's water supply²⁵. Releases from Angat flow along the river to the Ipo reservoir from where raw water is conveyed through a transmission system of tunnels to Bigte and aqueducts²⁶ to water treatment plants in Manila. The treated water is then distributed to households, businesses, and industries in Manila, and parts of Cavite and Rizal.

5. It is estimated that currently up to 200,000m³ or 5% of the total potential capacity of raw water from Angat reservoir is lost²⁷ daily due to leakage of the aqueducts. The transmission system is relatively old, in poor condition, and not in compliance with current structural and seismic requirements, risking the partial interruption of Manila's water supply.

6. Provision of water supply and sanitation in Manila is the responsibility of MWSS, a government-owned corporation. In 1997, it awarded two concession contracts to private firms for water services. The concessionaires are Manila Water Company Incorporated (MWCI) and Maynilad Water Services Incorporated (MWSI). The MWCI concession has been operating profitably since 1997, and has demonstrated its ability to meet targets for water supply improvements and non-revenue water (NRW) reduction. Although MWSI experienced financial difficulties and initially failed to pay full concession fees, a new owner/fresh management and

²⁴ The Angat reservoir is a multipurpose dam for water supply, irrigation, and hydro power generation, commissioned in 1967.

²⁵ Source: MWSS water security legacy plan

²⁶ The transmission system consists of 3 parallel tunnels just over 6 km long with diameters from 2m to 4 m feeding 6 aqueducts with lengths of 15km and diameters varying from 1.5m to 3.7m. The oldest were constructed in 1939, the newest as recent as 2012.

²⁷ These losses are in addition to the NRW levels quoted by the MWSS concessionaires.

restructuring of the concession in 2007 resulted in it now operating profitably. MWSS has retained responsibility for bulk water supply.

7. A joint venture of the two concessionaires operates and maintains the transmission system and other common facilities of the Angat-Umiray system.

8. The demand on the Angat water source is about 4.0 million m³/day, and has been relatively constant since 2010, as a result of the very successful NRW reduction programs of the concessionaires. However, following 2015, the demand of Metro Manila will increase rapidly due to expected water service area expansion and population growth. The demand is expected to increase by 38% by 2025, to 6.16 million m³/day. MWSS are planning to develop a new water resource to meet this demand.

9. About 15 years ago, MWSS recognized the need to rehabilitate the aqueducts. At that time, the total potential transport capacity of the Angat transmission system, consisting of three parallel tunnels and five parallel aqueducts, was believed to be 4.76 million m³/day. However, the actual capacity was about 30% less (3.3 million m³/day), due to the high leakage rate; especially that of aqueduct number 5. To rehabilitate the aqueducts and restore capacity, MWSS built a new parallel aqueduct (number 6) in two phases: first bypassing the upstream part of aqueduct number 5, completed in 2003, followed by bypassing the downstream part of aqueduct number 5 which was completed in July 2012. The upstream part of aqueduct number 5 was rehabilitated in 2012. Under the present arrangement of tunnels, aqueducts 5 and 6 can only flow at around half their capacity.

10. It is essential to rehabilitate the tunnel-aqueduct transmission system so that the full potential water yield from the Angat system of 4.0 million m³/day can be conveyed efficiently to the treatment plants. It has been established that the proposed Tunnel 4 is required to provide the system flexibility that will enable full rehabilitation of the transmission system²⁸.

11. In July 2011, MWSS adopted the Water Security Legacy project which outlines MWSS's challenges and plans in key areas of its operation: from developing, managing and protecting its water sources to achieving organizational excellence. Based on this plan, MWSS has prepared a public investment program from 2011 to 2016 totalling \$1.6 billion, which covers the improvement of the Angat water transmission system.

12. Since 1974, ADB has loan-financed various projects for the Manila water system, including three projects for the Angat water supply system²⁹. These projects have successfully contributed to the construction of major infrastructure components for water supply from the Angat reservoir. Similarly, ADB, the World Bank and other external development partners have been assisting MWSS and the concessionaires in various aspects of water supply system improvement for Manila.

III. THE PROJECT

13. The project, to be procured through a design-build contract, will convey 1.64 million m³/day (19 m³/s) of raw water from Ipo to Bigte. It will require construction of:

²⁸ TA 8196-PHI: Angat Water Transmission Improvement Project Assessment and Feasibility Reports dated 2013.

²⁹ Angat Water Supply Optimization, November 1989 (\$130 million); Umiray-Angat Transbasin: TA, December 1992 (\$2.6 million), and investment, September 1995 (\$92 million).

- An inlet structure within the Ipo reservoir
- An approximately 6.2km long concrete lined tunnel with internal diameter of approximately 4.0m
- An outlet basin and connection to aqueduct 5 at Bigte

14. As the project is design-build, the details will be developed by the contractor within certain constraints which include:

- Disruption to operations of transmission system during construction to be minimal.
- Tunnel 4 must be within the existing MWSS right of way. The MWSS right of way is a 60m wide corridor approximately centred on Tunnel No.1
- Tunnel 4 cannot pass over or under existing working tunnels as risk of collapse and disruption unacceptable. This means the Tunnel 4 alignment is restricted to the corridor between Tunnel 1 and the southern boundary of MWSS right of way.
- Tunnel 4 must convey 19.0m³/s. Design criteria for this are:
 - Elevation of Ipo reservoir water elevation 100.3m
 - Elevation of Basin 3 (AQ5 start) water level 95.5m
 - The hydraulic roughness to be the long term roughness after degradation of the surface with age.
- The Intake to be located between the old and new Ipo dams to reduce risk of silt build up in front of intake. Silt levels upstream of the old dam are at an approximate elevation of 91.0m and are increasing by approximately 0.3m a year. In comparison, silt levels downstream of the old dam are at an approximate elevation of 83.0m and the rate of increase is significantly smaller.

IV. PROJECT PROGRAM

15. The key activities of the project are indicated in the figure below.

	2014				2015				2016				2017				2018				2019				2020			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Loan negotiation			■																									
Loan signing				■																								
Loan effectiveness				■																								
Tunnel Construction																												
Notice to Proceed				■																								
Contractor's mobilization				■																								
Surveys and Investigations					■	■																						
Detailed design					■	■	■																					
Construction								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
Performance tests, commissioning																				■	■	■						
Demobilization																								■				
Defect notification period																								■	■	■	■	■
Management Activities																												
Advertisement design build contract		■	■																									
1 st stage bidding		■	■	■																								
Technical evaluation			■	■																								
2 nd stage bidding				■	■	■																						
Technical/financial evaluation				■	■	■																						
Contract award				■	■	■																						
Advertisement management consultant contract		■	■																									
Bidding			■	■	■	■																						
Evaluation				■	■	■																						
Contract award				■	■	■																						
Contract supervision and project management					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
Safeguard implementation																												
Updating draft EMP				■	■	■	■																					
Validation of IR classification				■	■	■	■																					
Updating draft IPP				■	■	■	■																					
Implement FPIC		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
Safeguard monitoring								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

16. The consultant services will be required for
 - 52 months during design and construction
 - 12 months during defect notification period
17. It is desired that project closeout is completed within these periods.

V. SCOPE OF CONSULTANCY SERVICES

18. The scope of services includes
 - i. **Contract management:** MWSS will be responsible for the procurement and delivery of the Project. MWSS' experience in procuring and implementing design-build projects is limited and the consultant will be required to provide leadership and advice that will enable the project to be effectively and efficiently procured and implemented.
 - ii. **Environmental and social safeguard implementation and monitoring:** MWSS needs to ensure that the Project is implemented and completed in compliance with ADB Safeguard Policy Statement 2009 (SPS). During preparation of the project social, gender, and environmental assessments were made, resulting in a Summary Poverty Reduction and Social Strategy, Initial Environmental Examination, Initial Environmental Examination and Risk Assessment and Risk Management Plan ³⁰. Mitigation and beneficial measures
 - iii. **Social, poverty action plans implementation and monitoring:** MWSS needs to ensure that the Project is implemented and monitored in accordance with ADB Public Communications policy, Guidelines for Incorporation of Social Dimensions in Bank operations, Gender and Development Policy, Handbook on Social Analysis, and Social Protection Strategy. During preparation of the project social, poverty, and gender assessments were made, resulting in a Summary Poverty Reduction and Social Strategy and Stakeholder Communication Strategy. Consultant services will be required to support the Project Management Unit in ensuring the Project's social development action plans and measures are implemented and monitored.

Contract Management Assistance

A. Assistance During Contract Implementation

19. MWSS will form a project management unit headed by a MWSS senior project manager. The project manager will be the Contracting Officer (CO) in Philippine terminology. The form of contract will be FIDIC General Conditions of Contract for Plant and Design-Build 1999, the Engineer will be the MWSS project manager (CO). The consultant will assist MWSS in carrying out tasks of the Engineer under the Contract with the exception of determining any issues with time or cost implications. The Consultant shall provide all information and analysis necessary for the Engineer to make these determinations.

20. The Consultant's main tasks will include but not be limited to:

³⁰ All documents are accessible on ADB's website <link>.

1. Assist MWSS project manager in establishing procedures for the effective and efficient management of the project
2. Advise and assist MWSS with review of contractor submissions including:
 - Designs
 - Programmes
 - Methods
 - Quality management plan
 - Health and safety plan
 - Traffic management plan
 - Environmental management plan
 - Testing plans
 - Test results
 - O&M manuals
3. Advise and assist MWSS with review of survey and geotechnical/geological investigations
4. Advise and assist MWSS with monitoring progress and reviewing Contractor's monthly progress reports which shall include:
 - Design progress
 - Construction progress
 - Construction quality
 - Health and safety
 - Traffic management
 - Environmental management
5. Assist MWSS with evaluation of variations and claims on cost and time
6. Assist MWSS with preparation of project cash flow forecast to completion on a monthly basis
7. Assist MWSS with preparation of payment certificates
8. Attend tests on completion
9. Assist MWSS with final inspections, preparation of punch lists for defects
10. Assist MWSS with review of final documentation including as built drawings, test records, O&M manuals
11. Assist MWSS personnel with Preparation of the Taking over Certificate

B. Assistance during Defect Notification Period

21. The consultant will be proactive in assisting in the closing out of the project during the defect notification period. The consultant's tasks during this period will include advising and assisting MWSS with:

1. Finalising all claims and other issues
2. Monitoring operational performance quarterly, during Defects Notification Period and preparing notification of any defects
3. Preparing Performance Certificate
4. Preparing final report on implementation of project to include lessons learned
5. Conducting workshop on implementation of project

C. Training to MWSS in Procurement and Implementation of Design-Build contracts

22. The Consultant will work closely with the MWSS procurement and project management teams providing advice, guidance and assistance during the implementation of the Project. In providing these services the Consultant will be passing on knowledge and skills to the MWSS

teams. In order to maximise the benefits of this knowledge transfer the Consultant is to hold regular training seminars, with documentation, during the provision of the services that will develop the capability of MWSS to execute design-build contracts in the future. Initial seminars on procurement and implementation will be held at the commencement of these activities. Subsequent seminars will be held at least every six months and will generally cover topics that are relevant to the activities since the previous seminar. The seminars shall cover, but shall not be limited to the following topics:

- Employer role
- Engineer role
- Contractor Role
- Time for completion, commencement and delays
- Contractor documents, review and acceptance
- Monitoring contractor performance
- Tests on Completion
- Taking Over
- Defects notification period
- Contract price and payment
- Claims and variations

Environmental and social safeguard implementation and monitoring

A. Social safeguard and environmental assessments

23. During project preparation, social impact and environmental impact assessments were made and relevant documents were prepared including safeguard measures.

Beneficial measures

24. The objective is providing social and economic benefits to the local and IP communities which will arise from the Project implementation. In principle, any development activity to be undertaken in the IPs ancestral domain will have to be sustainable and must be enjoyed by the majority of the IP households. These benefits should address social and poverty issues and should be culturally appropriate and gender responsive. The identified development activities mentioned are listed below. These will need to be confirmed when updating IP and IR related documents based on the final engineering design and during Free Prior Informed Consent (FPIC) process by NCIP:

- (i) prioritize local and IP communities in temporary construction employment, targeting 50% of unskilled jobs;
- (ii) IPs will be prioritized for work during construction including enterprise development for women for food vending and other economic opportunities during and after construction.
- (iii) awareness program targeting men and women in Bigte and San Mateo and IPs to inform them of the business/livelihood opportunities that will be generated during project construction and how they could participate and benefit from it;
- (iv) advocacy campaigns for sanitation and hygiene including how to ensure safe drinking water for IP households and to prepare plan how to provide water sealed toilets for IP households living in Sitio Ipo

- (v) continuing IEC activities for proper waste disposal among households near the river banks.

Mitigation measures

25. The mitigation measures are designed to ensure project implementation will not negatively impact the well-being of local and IP communities. The identified mitigation measures are listed below but need to be confirmed when updating EMP, IP and IR documents. All contractor's responsibilities should be reflected in the works contract.

- (i) the contractor prepares and implements proper traffic route plans, uses proper road signage, adequately inform local communities about road use, closure etc. and provides driving safety training to its operators.
- (ii) the contractors' road traffic plans and management take into account the needs and concerns of women and children to ensure their safety and protection.
- (iii) the contractor prepares and implements a Public/Community and Occupational Safety plan that will include, among others, adequate public information, signages, use of PPEs, safety checks/audits, etc.
- (iv) the contractor ensures that necessary/applicable GOP permits are obtained for the use of the construction staging area/s.
- (v) the contractor shall establish the grievance redress mechanism (to cover all safeguards) prior to any field activities that may be conducted.
- (vi) the trucked potable water contractor can capably manage the consistent supply of adequate and reliable water for the local communities during project construction and the annual dry season.
- (vii) the contractor provides and maintains access of IPs to transport fish catch and students from upstream settlements. An alternative boat landing and path way have been identified by the IPs to facilitate transport of people, students, goods and services.
- (viii) contractor's schedules and manages drilling and blasting activities so to avoid noise as well as ensure safety of IPs doing their daily chores near the construction site (bathing and washing)
- (ix) contractor reduces water turbidity and minimizes soil erosion by adopting proper construction methods.

B. Assistance to be provided

26. MWSS's project management unit will include a specific safeguard unit, responsible for implementation and monitoring social and environmental safeguards. This unit will be supported by the Resettlement Group within a Support Services Group under the Deputy Administrator for Engineering and Operations. The consultant will assist and train this unit in performing their tasks.

27. The Consultant's main tasks will include but not be limited to:

- (i) Updating social safeguard (IR and IP) and Environment (IEE/EMP/CEMP) documents based on final design following ADB SPS 2009
 - Final community consultations with persons living above the proposed tunnel 4, communities living near the tunnel alignment based on detailed design, and UIP communities. They will be updated on detailed project implementation activities,

- schedules and proper safety and traffic measures installed including access to grievance redress mechanisms in case of complaints and issues
- Updating of the environmental, IPP and final IR due diligence to ensure mitigation measures in case of changes in the final engineering design, or changes in scope
 - Assist in completing the FPIC process
- (ii) Capacity building needs assessment
- MWSS will be responsible for implementing the project in partnership with other key stakeholders and the IP communities. The MWSS- safeguard unit and designated safeguard officers will be capacitated to plan, implement and monitor project's environmental and social safeguards as reflected in EMP, SPRSS, IR due diligence report and IPP. Training needs assessment will be undertaken immediately, as soon as specialists are mobilized. Based on the training needs assessment, a capacity building training will be developed and implemented. The focus of the training will include safeguard planning, implementation and monitoring. It will also include an orientation of ADB's Safeguards Policy Statement (2009) and Social Policy Guidelines that has relation s to the project.
 - Peoples organizations or associations working in the project area need to be identified and assessed for their capacity to assist the IPs at the community level in identifying their needs and problems as basis in preparing a sustainable IPP.
- (iii) Development and implementation of awareness and promotion campaigns:
- Public awareness and training for the source communities and contract workers on the risks of STDs and HIV/AIDS and responsible sexual behavior.
 - Promotion of gender awareness and training across MWSS targeting the OSP and other project planning and implementation functional MWSS departments and assist them to adopt and implement a company gender policy
 - stakeholder communication strategy as presented in the Project Administration Manual
 - Any other as identified in updated EMP, IPP and or IR due diligence report.
- (iv) Monitoring and evaluation
- Regular safeguards monitoring will be undertaken MWSS's safeguard unit with the technical support from the consultant
 - Monitoring and evaluation requirements and the consultants' role are described in detail in the Project Administration Manual

Social, poverty action plans implementation and monitoring

28. MWSS project management unit will include appointment of a social development and gender specialist, who will be supported the Consultants. The unit will be responsible for implementation and monitoring of social, poverty and gender action plans and measures. The consultants will advise and assist the unit to plan and coordinate the implementation of the action plans.

29. The consultant's main tasks will include but not be limited to:

- (i) Prepared detailed action and monitoring plan and design and implementation framework for the implementation of the project's social inclusion, poverty and gender measures and targets in the DMF, SPRSS, GAP, and SCS with clear

- timelines, costing/budgets and responsibilities and provide a standard template for monitoring social and reporting gender impact.
- (ii) Coordinate the implementation of the project's social inclusion, poverty and gender measures and DMF measures with relevant stakeholders including the civil contractor, LGUs/Barangay Councils, business/private sector and civil society/NGOs to ensure that these measures and targets are implemented in an inclusive and effective way.
 - (iii) Provide social and gender orientation and awareness training to key OSP/EA/IA staff and relevant stakeholders on social and gender measures and its implementation, monitoring, review, reporting and evaluation process.
 - (iv) Provide guidance to OSP/IAs on how to ensure adequate consultation and participation of women.
 - (v) Engage in advocacy with LGUs/barangay officials, civil society/NGOs and local communities on importance of community participation in civil construction employment, business and livelihood opportunities, road safety and health/social risks mitigation measures.
 - (vi) Design awareness raising materials and support implementation at the commencement of project implementation to inform all stakeholders and source communities about the project background and benefits and its social and gender inclusion measures and targets.
 - (vii) Ensure awareness materials developed for the project is simple, gender sensitive, and available in local languages (where appropriate).
 - (viii) Ensure the collection of relevant sex disaggregated data for all project activities, and guide implementing agencies on how to collect and use sex disaggregated data for input into project reporting, bi-annual GAP progress reports, mid-term review and the project completion report.
 - (ix) Continue to track and record social and gender progress and results from the project in a systematic and easily accessible form, linked to overall project results and the PPMS.
 - (x) Assess and address any inadequacy in social inclusion and gender provisions, and identify remedial actions to review or strengthen social and gender measures if required.
 - (xi) Ensure that all review missions include consideration of social and gender progress, involve consultation with men and women beneficiaries and include social and gender reporting in mission reports by providing technical support to mission teams and OSP.

VI. STAFFING

30. The consultant will propose a team able to carry out the full scope of services. It is anticipated that the teams required providing assistance with procurement, design review and construction management will need different skills and personnel. In order to ensure continuity and conformity the consultant will appoint a team leader who will lead the consultant's team in all these areas.

31. The consultant team will be mainly staffed by national personnel; however, international experts will be required to provide specific skills and experience. The anticipated key roles and minimum experience requirements are indicated in Table 1. CVs of staff nominated for these roles and any other key roles identified by the consultant must be provided with the consultant's bid.

Table 1: Basic Professional Requirements of Personnel

Designation	Minimum Experience Required ³¹	Expected person months input
Key Personnel		
International experts		
Team Leader/ Construction Manager	The expert must have a degree in civil engineering and be a professionally qualified civil engineer with at least 15 years' experience in the design and construction of tunnel and civil engineering works. At least 3 years experience as team leader on the supervision of a tunnel construction project. The expert must have hands on experience in design-build contracts and must have international construction experience.	54
Tunnel engineer (design)	The expert must have a degree in civil engineering and be a professionally qualified civil engineer with at least 10 years' experience in the design and construction of rock tunnel works.	6
Tunnel engineer (construction)	The expert must have a degree in civil engineering and be a professionally qualified civil engineer with at least 10 years' international experience in the design and construction of rock tunnel works.	12
Engineering geologist	The expert must have a degree in geology/rock mechanics and hold a relevant professional qualification with at least 10 years' international experience in rock tunnel construction.	6
Social safeguard (IR/IP) expert	The expert must have a degree in social science and at least 10 years work experience in social development, resettlement and relevant work with IPs	6
Social and gender specialist	The expert must have a degree in social science and at least 10 years work experience in social development, gender and poverty reduction and relevant experience supporting field operations	6
Environmental specialist	The expert must have a degree in environmental science/engineering (or related field) and at least 10 years work experience in environmental management/monitoring of construction works.	6

³¹ For all experts experience in externally funded projects (ADB or World Bank) would be advantageous. For international experts, experience in the region would be advantageous.

Designation	Minimum Experience Required ³¹	Expected person months input
National experts		
Deputy Team Leader/ Construction Manager	The expert must have a degree in civil engineering and be a licensed civil engineer with at least 10 years' experience in the design and construction of tunnel and civil engineering works. Knowledge of the requirements of the Philippine authorities for construction works and permits is essential..	53
Civil engineer (design)	The expert must be a licensed civil-structural engineer with at least 10 years' experience in the design of civil engineering works. Must be conversant with the building code of Philippines and other relevant national building standards.	6
Tunnel engineer (design)	The expert must be a licensed civil-structural engineer with at least 10 years of experience in design of tunnel works.	12
Civil engineer (construction)	Graduate engineer with at least 5 years of experience in construction of civil engineering works.	18
Tunnel engineer (construction)	Graduate engineer with at least 5 years of experience in construction of tunnel works.	36
Electro-mechanical Engineer	Graduate engineer with at least 10 years of experience in design, installation, operation and maintenance of electrical-mechanical equipment.	6
Geologist	Graduate in geology or engineering geology with at least 5 years of experience in geological mapping.	12
Geotechnical engineer	Graduate (post graduate preferred) in rock mechanics with at least 10 years of experience in assessing rock behaviour, preferably in tunnels.	12
Safety engineer	Graduate engineer with at least 5 years' experience in implementation of construction safety plans. Must be DOLE accredited safety practitioner	48
Quality Assurance manager	Graduate engineer with at least 5 years' experience in implementation of design /construction quality plans.	48
Contracts administrator	Professional engineer with at least 10 years' experience in contract administration and analysis of time and cost claims on civil engineering works. Some experience with multi-lateral funded projects is preferred.	53
Social safeguard (IR/IP) expert	The expert must have a degree in social science and at least 10 years work experience in social development, resettlement and relevant work with IPs	24
Social and Gender specialist	The expert must have a degree in social science and at least 10 years work experience in social development, gender and poverty reduction and	24

Designation	Minimum Experience Required ³¹	Expected person months input
	relevant experience supporting field operations.	
Environmental specialist	The expert must have a degree in environmental science/engineering (or related field), knowledge on Philippine EIS System and other laws, and at least 10 years work experience in environmental management/monitoring of construction works.	24
Pool of experts	The experts must have a degree in their respective work of expertise and at least 5 years work experience in either (i) engineering; (ii) works inspection; (iii) planning and management; (iv) organization development; (v) organizing and mobilization of resources; (vi) marketing and financial management; (vii) entrepreneurship; and, (viii) vocational and technical skills training	320

32. The Team Manager shall be responsible for overall management and delivery of the services. He will ensure that the planning and deployment of manpower is arranged such that the Consultant's team is adequate to ensure efficient and effective provision of the required services, advice and training.

33. The consultant will be required to have an office in Manila. The consultant will be provided with suitable office space, office furniture, lighting, electricity, air conditioning and phone lines within the MWSS project management office for the team manager and 6 staff.

34. The site engineers, geologists and technicians will be provided with office accommodation at the Ipo and Bigte worksites. The consultant shall be responsible for providing computers, mobile phones and other site equipment for his staff. The consultant will provide his own vehicles and drivers.

VII. REPORTING

35. The Team Manager will be responsible for the production and contents of all the documents that the consultant produces.

36. The minimum reporting requirements during the different stages of the project are indicated below:

Implementation stage reports/documents

37. The consultant's task is to assist the MWSS project management team in the supervision and administration of the project. The Consultant will produce draft reviews/reports as outlined below for MWSS to finalize and issue.

- a. Draft reviews of contractor sectional design submissions
- b. Draft reviews of contractor plans for
 - i. quality management

- ii. safety
 - iii. traffic management
 - iv. environmental management
 - v. testing
 - c. Draft review of programme and methods
 - d. Valuations
 - e. Draft reviews of claims and variations for time and money
 - f. Draft review of Contractor's monthly reports covering
 - i. Progress
 - ii. Quality
 - iii. Cost
 - iv. Issues
 - g. Draft quarterly and annual summary reports for ADB/MWSS management, including Social development and Gender Monitoring Reports, Environmental Monitoring Reports and IP Monitoring Reports
 - h. Draft review of final documentation
 - i. Draft project Completion Report following ADB template.
- Defects Notification Stage reports/documentation**
- j. Implementation of project to include lessons learned
 - k. Punch list of defects in conjunction with MWSS and Contractor
- Training reports/documents**
- l. Training seminars - notes and report
 - m. Final report summarising scope of training and competence achieved

38. The consultants shall assist MWSS to produce any other project related reports and documents that may be required by ADB or MWSS management.