Project Administration Manual

Project Number: 50288-004
Loan Number: LXXXX
November 2019

Republic of the Philippines: Infrastructure Preparation and Innovation Facility– Additional Financing

Contents

Appendixes

Project Administration Manual's 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 of Philippines 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 Department of Finance (DOF) as the executing agency; implementing agencies including the Department of Transportation (DOTr) and the Department of Public Works and Highways (DPWH), are wholly responsible for the implementation of this ADB-financed project, as agreed jointly between the government and ADB, and in accordance with government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by the DOF and implementing agencies with 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's administrative procedures (including the Project Administration Instructions of ADB) and upon such approval they will be subsequently incorporated in the PAM.

ABBREVIATIONS

ADB	–	Asian Development Bank
COBP	–	country operations business plan
CPS	–	country partnership strategy
DOF	–	Department of Finance
DOTr	–	Department of Transportation
DPWH	–	Department of Public Works and Highways
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
GDP	–	gross domestic product
ICC	–	Investment Coordination Committee
ISA	–	International Standards on Auditing
ISAE	–	International Standards on Assurance Engagements
ISSAI		International Standards of Supreme Audit Institutions
NEDA	–	National Economic and Development Authority
OCR	–	ordinary capital resources
ODA	–	overseas development assistance
PIB	–	public information booklet
PMU	–	project management unit
SOE	–	statement of expenditures
TA	–	technical assistance

NOTE

In this manual, “taxes” and “duties” mean taxes and duties within the territory of the Republic of the Philippines, unless otherwise specified in the text.

I. PROJECT DESCRIPTION

A. Rationale

1. **Accelerating Infrastructure Investment.** The current administration under the Ten-Point Socioeconomic Agenda[1] aims to ramp up public infrastructure projects such as national roads, expressways, bridges, airports, subways, and railways. Public spending on infrastructure is expected to reach 7.0% of gross domestic product (GDP) by 2022—or approximately $14.5 billion annually, from the current level of 3.4% of GDP in 2016. To materialize the goals of infrastructure investment, the government requested the project from the Asian Development Bank (ADB) to help the two key agencies responsible for national public infrastructure projects, namely the Department of Transportation (DOTr) and the Department of Public Works and Highways (DPWH), conduct pre-investment activities which will in turn help accelerate the Investment Coordination Committee (ICC) review and approval process and ensure timely, high-quality procurement and implementation.[2]

2. **Core Development Problem**. Infrastructure enables access to work, markets, education, healthcare, housing, and other services that allow people to uplift their standards of living. Lack of or underdeveloped infrastructure has been identified as one of the most significant constraints to the Philippines' growth prospects. While the country has improved consistently in the Global Competitiveness Ranking, from 65th in 2012–2013 to 57th in 2016–2017, its overall infrastructure significantly lacks behind other emerging Southeast Asian countries.[3] In 2016–2017, the Philippines was ranked 112th out of 138 countries in terms of infrastructure quality, well below other Southeast Asian countries, such as Malaysia (19th), Thailand (72nd), and Indonesia (80th). The impacts of underdeveloped public infrastructure are high costs of doing business, which, in turn, undermine business potential and economic opportunities, especially in rapidly growing urban areas. Significant catch-up in infrastructure development is needed in the Philippines to realize the country's potential and remain competitive.

3. **Infrastructure Development Constraints**. Underdeveloped infrastructure is attributed to five factors: (i) inadequate infrastructure investment; (ii) lack of inter-agency coordination; (iii) inadequate or incomplete infrastructure plans and implementation programs; (iv)limited access to international expertise and constrained technical and management know-how in project preparation and implementation; and (v) inadequate sustainability of infrastructure. Coordination between the two main agencies responsible for infrastructure (DOTr and DPWH) and other key agencies is limited, which constrains project preparation and implementation. Infrastructure projects are often not delivered as planned due to either dated project formulation or dated project implementation, or both. Delays in safeguard compliance, procurement, and land acquisition as well as inadequate project management systems delay timely project delivery. The lack of project management and monitoring systems also implies that infrastructure is often delayed, inefficiently operated, and inadequately maintained, thereby undermining sustainability of project benefits.

4. **Tackling constraints to infrastructure planning, design, and implementation**. To enhance national capacity, additional access to international sources of innovation, expertise, advice, and best practices would enable DOTr and DPWH to incorporate expertise and innovation in project formulation and implementation. An ADB-funded project and its international procurement systems would facilitate DOTr and DPWH access to required specific technologies,

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[1] National Economic and Development Authority. 2016. *Philippine Development Plan 2017-2022*. Manila. http://www.neda.gov.ph/wp-content/uploads/2018/02/PDP-Brochure.pdf.

[2] The government's official request for ADB's assistance was made on 8 February 2017.

[3] World Economic Forum. 2017. Global Competitiveness Report 2017. Geneva.

international expertise, and innovation, complementing and building on nationally available expertise. The project will help DOTr and DPWH to more effectively execute and implement public infrastructure projects by accelerating the due diligence stages, detailed engineering designs, and the bidding process preparation.

5. **A Medium-term Solution.** The project offers a short- to medium-term solution to meet the near-term needs for increased capacity of DOTr and DPWH in preparing public infrastructure projects in the Philippines. ADB has supported the government to address infrastructure constraints through infrastructure projects and providing access to international best practices and innovation through project loans. The Project will supplement these interventions by providing DOTr and DPWH with easier access to international expertise and best practices. They will allow the government to act on its Ten-Point Socioeconomic Agenda to support the increase in spending on public sector infrastructure. In addition, the project will provide support for the preparation of the long-term solution to the problem by: (i) building capacity of government agencies to effectively plan, identify, design, manage, and implement projects; and (ii) set the groundwork for a holistic examination of the current national procurement system and develop options for additional efficiency in its implementation. A separate TA Grant (TA9336-PHI) has been provided to timely support capacity development and system management of public sector infrastructure development in the key agencies of DOTr, DPWH, and National Economic and Development Authority (NEDA)in the short-to-medium term.[4]

6. **Alignment with the ADB Strategic Agenda**. The project is included in the country operations and business plan, 2017–2019. It contributes to the inclusive economic growth and environmentally sustainable growth agenda of ADB's Midterm Review of Strategy 2020.[5]

7. **Value added by ADB assistance**. The project will build upon ADB's successful experience supporting the Public–Private Partnership Center for the Philippines and enhance the government public sector agencies' institutional set-up and capacity to identify, finance, and implement public-financed projects. The project will also be supported by the separate TA grant which will develop a public infrastructure project system management procedure and strengthen capacity of DOTr and DPWH staff to effectively implement and monitor projects.

8. The ADB assistance will provide value addition in the direct support to DOTr and DPWH in delivering more effective and innovative infrastructure projects through: (i) enhanced effectivity of identification, analysis, and planning for infrastructure gaps using international best practices, especially roads, urban transport, urban water, sanitation, and flood management; (ii) addressing critical constraints such as resettlement processes and inadequate access to international knowledge, best practices, innovation, and technology; and (iii) implementation management of sophisticated public infrastructure projects with international expertise to supplement national expertise and resources. The project will also help define key operational areas for ADB through gap analysis and support for country system development in key areas such as (i) land acquisition; (ii) procurement; and (iii) start-up delays.[6] A TA loan is proposed as the financing modality.

[4] ADB. 2017. *Technical Assistance to Philippines for Strengthening Infrastructure Capacity and Innovation for Inclusive Growth*. Manila.
[5] ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.
[6] ADB. 2012. *Development Effectiveness Brief—Philippines: A New Horizon for One of Asia's Most Promising Nations*. Manila.

B. Rationale for Additional Financing

9. Inadequate or underdeveloped infrastructure has been identified as one of the key constraints on the Philippines' growth. The 2018 Global Competitiveness Report by the World Economic Forum ranked the Philippines 56th out of 140 countries, advancing it by 29 places since 2010, mainly based on improvements in the macroeconomic environment.[7]However, the country ranked low on infrastructure (92nd), below other Southeast Asian countries such as Indonesia (71st), Thailand (60th), and Malaysia (32nd). Among the direct impacts of inadequate infrastructure are the high costs of doing business, which undermine business potential and economic opportunities, especially in rapidly growing urban areas.

10. The government has been increasing public infrastructure investments under the "Build, Build, Build" Program to raise the Philippines' long-term growth potential. In 2016, the government announced a ten-point action plan that targets public spending on infrastructure reaching 7.0% of gross domestic product by 2022 from 3.4% in 2016. The government has already achieved substantial progress on this agenda. In 2018, public spending on infrastructure rose to 5.1% of gross domestic product. The difference between the current level of investment and the government's target indicates that efforts to accelerate infrastructure investments should be sustained in the coming years.

11. ADB approved funding for the facility on 27 October 2017 to offer a short- to medium-term solution to the near-term needs of the DPWH and DOTr to boost their capacity for preparing public infrastructure investments. The facility has four components: (i) Output 1: road and bridge projects prepared; (ii) Output 2: water projects prepared; (iii) Output 3: rail, public transport, port, and airport projects prepared; and (iv) Output 4: project management capacity of the government improved. Since the approval of the facility, ADB has programmed a record volume of ADB financing in the Philippines, reaching $9.1 billion for 2020-2022.[8]

12. The ongoing project's early implementation has been effective. Three framework consultants had been recruited under advance contracting, which enabled the DOTr and DPWH to sign the contracts within 2 months after loan effectiveness in February 2018. Shortly after their mobilization, the consulting firms conducted an initial project strategic review, which helped the DOTr and DPWH identify priority projects and project preparation steps. As a result of the prioritization, the government has decided to focus support under the facility on large and complex projects, which benefit most from access to international expertise. Table 1 shows the major projects that the facility is supporting. These projects are expected to be financed by ADB and other financing sources.

Table 1: Support Provided under the Ongoing Project

Name of Project	Implementing Agency	Type of Support
Bataan–Cavite Interlink Bridge Project	DPWH	Feasibility study
Laguna Lakeshore Road Network Project	DPWH	Master planning and feasibility study
Samal Island Davao Bridge Project	DPWH	Feasibility study and DED
North Eastern Luzon Expressway Project	DPWH	Feasibility study
Sorsogon Samar link project	DPWH	Prefeasibility study
Bohol Leyte Bridges Project	DPWH	Prefeasibility study
Metro Manila Bridges Project	DPWH	DED

[7] World Economic Forum. 2018. *The Global Competitiveness Report 2018*. Geneva.
[8] ADB. 2019. *Country Operations Business Plan: Philippines, 2020–2022*. Manila

Name of Project	Implementing Agency	Type of Support
Flood Risk Management Investment Project for Six Major River Basins	DPWH	Master planning, feasibility study, DED, and tender support
EDSA Greenway Project	DOTr	Feasibility study, DED, and tender support
Mindanao Rail Project	DOTr	Tender support, technical review, and additional surveys and investigations
Metro Manila Subway Project	DOTr	Tender support and technical review
North South Commuter Rail and South Long-Haul Project	DOTr	Tender support and technical review
New Cebu International Container Port Project	DOTr	Technical review and safeguard impact study
Mindanao Central Airport Project	DOTr	Strategy development
Subic Clark Railway Project	DOTr	Review of feasibility study

DED = detailed engineering design, DOTr = Department of Transportation, DPWH = Department of Public Works and Highways, EDSA = Epifanio delos Santos Avenue.
Source: Asian Development Bank

13. The ongoing project's implementation has been successful, and lessons have been drawn from its implementation:

(i) Demand for facility support has exceeded initial expectations. The facility is supporting pre-investment activities as varied as feasibility studies and assistance with tenders for infrastructure projects with a total value of more than $30 billion;[9]

(ii) The facility has been efficient in providing the DOTr and DPWH with access to international expertise. This enabled the preparation of technically complex projects (such as long-span bridges), with which the DOTr and DPWH had no prior experience;

(iii) The facility has assisted the government to make sound and objective investment decisions. For example, the initial project strategic review carried out under outputs 1-3 helped the DOTr and DPWH to focus preparation on projects with higher socioeconomic benefits and to identify realistic preparation steps;

(iv) The facility has accelerated the implementation of very large infrastructure projects. For example, it has been helping the DOTr tender its large rail and metro projects, which may have been delayed without the support under the facility;

(v) The flexible contracting approach used under the facility (i.e., the use of framework contracts) has been effective in helping the government select projects to be prepared and, subsequently, launch feasibility studies and other pre-investment activities. Under the proposed additional financing, project preparation activities will be better defined, and the contracting approach is expected to shift to project-based terms of reference, which will further smoothen implementation; and

(vi) The original loan fund for output 4 has not been used since the government is utilizing separate technical assistance provided by ADB to develop capacity for the project preparation activities (TA Grant).[10] This includes safeguards, contract management of consulting services, and accounting of the loan. Under the

[9] When the current project was approved, the facility was expected to support only about $3.8 billion of infrastructure investments. The IPIF supports not only ensuring ADB financing project but projects financed under other financing sources.

[10] ADB. 2017. *Technical Assistance to the Republic of the Philippines for Strengthening Infrastructure Capacity and Innovation for Inclusive Growth*. Manila.

proposed additional financing, further intensive capacity development and support will be required to manage the implementation of large-scale projects.

14. Under the ongoing project, three consulting service contracts totalling $76.8 million have been awarded as of 30 September 2019, of which $14.7 million has been disbursed; and one consulting service contract is under recruitment. All of the original loan proceeds, including contingencies, are expected to be committed for pre-investment activities before the end of 2019. To mitigate the lack of capacity and experience of the DOTr and DPWH and support the implementation of the facility, ADB has mobilized project management advisors and provided capacity development programs under the TA Grant. The TA has also been supporting the daily operations of the DOTr and DPWH project management units (PMUs).

15. The ongoing project is categorized as performing well since (i) project performance has been satisfactory;[11] (ii) safeguard policy requirements have been complied with, (iii) the expected outputs are being achieved, and (iv) risk management measures are being implemented successfully.[12]

16. **Proposed additional financing.** Foreseeing that the demand for project preparation activities will exceed the availability of funding under the ongoing project, the government has indicated the need for additional financing to scale up the facility. The proposed additional financing will finance project readiness activities for high priority large infrastructure projects and build the capacity of the DOTr and DPWH to implement them. Among others, the proposed additional financing will extend the assistance provided under the ongoing project by bringing selected flagship projects initiated under the ongoing project to the stage where civil works can commence. In particular, it will finance the DED of projects for which feasibility studies are being undertaken under the ongoing project(e.g., the Bataan–Cavite Interlink Bridge Project and the Laguna Lakeshore Road Network Project).[13] Furthermore, the proposed additional financing will support strengthening the project management capacities of the DOTr and DPWH for effective and efficient implementation of the projects supported by the facility.

17. **Modality.** Additional financing is suitable as the proposed project has strong links with the ongoing project in terms of design and implementation arrangements, and will contribute to scaling up the outcome and impact of the facility. All eligibility criteria for additional financing are met, as the proposed project is (i) technically feasible and economically viable; (ii) accorded high priority by the government; (iii) consistent with the project's development objectives; and (iv) consistent with the country partnership strategy (para. 18).

18. **Alignment with ADB country partnership strategy**. The proposed additional financing directly supports ADB's country partnership strategy's strategic pillar of accelerating infrastructure investment, which remains the government's priority. It is also an essential element of ADB's country operations business plan. Three infrastructure projects to be supported under the proposed additional financing are already included in ADB's country operations business plan for possible ADB financing.[14]The overall project will support the preparation of infrastructure projects worth more than $5.9 billion in programmed ADB lending for 2020–2022 (footnote 8).

[11] The project performance was rated *on track* as of the end of the second quarter, 2019. Summary of Project Performance (accessible from the list of linked documents in Appendix 2).
[12] The project performance was rated *on track* as of the end of the second quarter, 2019. Summary of Project Performance (accessible from the list of linked documents in Appendix 2).
[13] These projects are included in the *Country Operations Business Plan: Philippines, 2020–2022* (footnote 3).
[14] Bataan–Cavite Interlink Bridge Project, Laguna Lakeshore Road Network Project, and Metro Rail Transit–Line 4 Project.

19. **Value added by ADB assistance.** The ongoing project is the first TA loan for the Government of Philippines. The ADB assistance constitute a novel means to support the DOTr and DPWH in delivering more effective and innovative infrastructure projects through (i) enabling mobilization of international consultants in project preparation; (ii) enhanced effective identification, analysis, and planning for infrastructure gaps using international best practices, especially in roads, urban transport, and flood management; (iii) addressing critical constraints such as resettlement and inadequate access to international knowledge, best practices, innovation, and technology; and (iv) implementation management of complex public infrastructure projects with international expertise to supplement national expertise and resources. The project will also strengthen the capacity of the government to implement projects under the implementing agencies.

C. Impact and Outcome

20. The project is aligned with the following impact: infrastructure development accelerated.[15] The project will have the following outcome: delivery and quality of public infrastructure projects improved. The impact and outcome of the project are the same as those of the current project.[16]The outcome indicator will be adjusted to add the amount of infrastructure projects to be approved by NEDA's ICC and procured.

D. Outputs

21. The scopes of the project are as follows. The TA grant (footnote 4) will continue to support capacity development for project management of the DOTr and DPWH.

22. **Output 1: Road and bridge projects prepared**. Under this output, the project will provide support to the concerned implementing agencies for the preparation, pre-implementation, and early implementation needs of road and bridge projects.

23. **Output 2: Water projects prepared.** Under this output, the project will provide support to the concerned implementing agencies for the master planning and preparation, pre-implementation, and early implementation needs of water projects for flood protection.

24. **Output 3: Rail, public transport, port, and airport projects prepared**. Under this output, the project will provide support to the concerned implementing agencies for the preparation, pre-implementation, and early implementation needs of rail, public transport, port, and airport projects.

25. **Output 4: Project management capacity of the government improved.** This output will train and provide hands-on support to the government for project preparation and implementation of projects under the implementing agencies.

26. **Implementation period**. The original IPIF became effective on 1 February 2018, and project is expected to be implemented until December 2021. The additional financing is planned to become effective in December 2019. Advance action to recruit the consultants under the additional financing will be carried out between September to December 2019. The works are proposed to be completed by 31December 2024.

[15] Government of Philippines, National Economic and Development Authority. 2017. *Philippine Development Plan*, *2017–2022*. Manila.
[16] The design and monitoring framework is in Appendix 1.

27. The project will support the implementing agencies under the project to undertake project preparation work for the infrastructure projects to be financed under official development assistance (ODA) or by government's internal financing. An indicative list of projects to be supported under the project is in Appendix 1. The potential projects are subject to change based on government priorities, technical and economic viability, and agreement with the ADB.

II. IMPLEMENTATION PLAN

A. Project readiness activities

Table 2: Indicative ADB and Government Processing Milestones

Activities	2017										Responsibility
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ADB Processing Milestones											
Fact-finding mission's wrap-up	X										ADB, DOF, DOTr, DPWH, NEDA
Advance action on consultant recruitment (on behalf of Government)		X	X	X	X	X	X	X	X		ADB, DOTr, DPWH
Loan negotiations							X				ADB, DOF, DOTr, DPWH, NEDA
ADB Board consideration								X			ADB
Loan agreement signing									X		ADB, DOF
Loan effectiveness declared										X	ADB
Government project preparation milestones											
Approval of fact-finding mission's Aide Memoire	X	X									DOF, DOTr, DPWH, NEDA
Advance action on consultant recruitment		X	X	X	X	X	X	X	X		ADB, DOTr, DPWH
Establishment of steering Committee							X				DOF (DOTr, DPWH)
Establishment of PMUs in DPWH and DOTr						X					DOTr, DPWH
Loan negotiation authorization							X				DOF, DPWH,
Legal opinion									X		DOF, DOJ
TA Grant Activities											
TA Approval (TA 9336)				X							ADB, DOF, DOTr, DPWH, NEDA
Advance action on TA consultant recruitment				X	X						ADB, DOTr, DPWH
TA Effectivity						X					ADB, DOF, DOTr, DPWH, NEDA
Consultant mobilization						X					ADB
Screening of Project lists				X	X	X	X	X	X	X	ADB, DOF, DOTR, DPWH, NEDA
Review of implementing agency project management systems				X	X	X	X	X	X	X	ADB

ADB = Asian Development Bank; DOF = Department of Finance; DOJ = Department of Justice; DOTr = Department of Transportation; DPWH = Department of Public Works and Highways; NEDA = National Economic Development Authority; PMU = project management unit; TA = technical assistance.

Source: Asian Development Bank staff estimates.

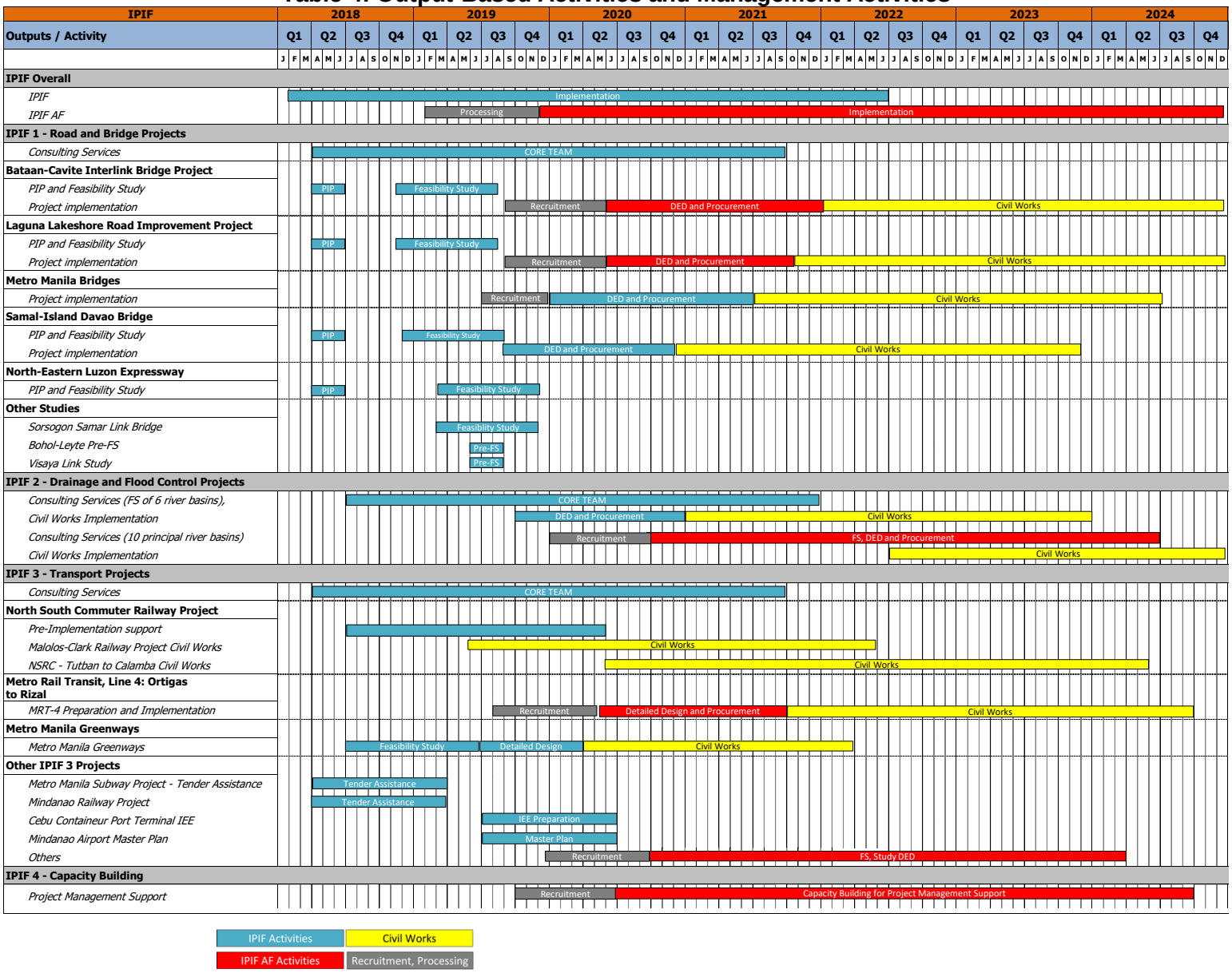
Table 3: Indicative ADB and Government Processing Milestones for Additional Financing

Activities	2019										Responsibility
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ADB Processing Milestones											
Fact-finding mission's wrap-up				X	X						ADB, DOF, DOTr, DPWH, NEDA
Advance action on consultant recruitment (on behalf of government)								X	X	X	ADB, DOTr, DPWH
Loan negotiations							X				ADB, DOF, DOTr, DPWH, NEDA
ADB Board consideration										X	ADB
Loan agreement signing										X	ADB, DOF
Loan effectiveness declared										X	ADB
Government project preparation milestones											
Approval of fact-finding mission's Aide Memoire				X	X						DOF, DOTr, DPWH, NEDA
Advance action on consultant recruitment								X	X		ADB, DOTr, DPWH
Loan negotiation authorization									X		DOF, DPWH,
Legal opinion										X	DOF, DOJ

ADB = Asian Development Bank; DOF = Department of Finance; DOJ = Department of Justice; DOTr = Department of Transportation; DPWH = Department of Public Works and Highways; NEDA = National Economic Development Authority.

Overall Project Implementation Plan

Table 4: Output-Based Activities and Management Activities



III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations–Roles and Responsibilities

28. Stakeholders' role and responsibility in the project are presented below.

Table 5: Agency Roles and Responsibilities

Project implementation organizations	Management Roles and Responsibilities
Department of Finance (DOF), Office of the Secretary	DOF will be the executing agency for the Project. ➢ Administer the Project as the executing agency of the ADB loan; ➢ Communicate with ADB for any amendments in the reallocation of the loan amount; ➢ Submit consolidated quarterly reports to ADB on the Project. ➢ Submit audited project financial statements, prepared by the implementing agencies, to ADB.
Steering Committee	The Steering Committee will be chaired by the Under Secretary of DOF. Other members of the Steering Committee will include implementing agencies, NEDA, and the Department of Budget and Management. The roles and responsibilities of the Steering Committee will include the following: ➢ Provide overall coordination and guidance during the implementation of the project; ➢ Prioritize public sector infrastructure project ➢ Monitor status of individual infrastructure projects and ensure that viable supported projects receive the required capital budget; ➢ The steering committee will meet regularly (at least once per quarter); ad-hoc meetings may take place at request of the Chairperson.
National Economic and Development Authority (NEDA)	NEDA will provide oversight on the prioritization of project and evaluation of projects through the ICC: ➢ Review project pipeline and assist with initial screening and prioritization; ➢ Review projects submitted to the NEDA-ICC.
Department of Transportation (DOTr) and Department of Public Works and Highways (DPWH)	DOTr and DPWH will be the primarily implementing agencies for the projects to be prepared for implementation under the Project. ➢ DPWH will primarily be responsible for Output 1: road and bridge projects, Output 2: water projects for flood protection, and Output 4: project management capacity improvement ➢ DOTr will primarily be responsible for Output 3: rail, public transport, port and airport projects, and Output 4: project management capacity improvement ➢ Lead communication and reporting on the Project with ADB; ➢ Submit quarterly reports for each output to DOF.

Project implementation organizations	Management Roles and Responsibilities
	➢ Establish and maintain a monitoring framework for all supported projects; ➢ Ensure compliance with agreed guidelines and procedures; ➢ Sign contracts with consultant firms ➢ Review and process payment requests for consultants; ➢ Maintain project books and accounts and manage financial reporting and accountability aspects (withdrawal applications, financial statements and reports, bank account statements, etc.); ➢ Lead financial management per *ADB's Loan Disbursement Handbook* (2017, as amended from time to time); ➢ Contribute to review of consultant outputs and quality assurance; ➢ Monitor status of project implementation. ➢ Contribute to the technical and financial evaluation criteria of submitted proposals.
Project Management Units (PMU) at DOTr and DPWH	The PMUs will be headed by the relevant undersecretaries, or any other authorized official, and will include necessary staff to smooth implementation of the project. The roles and responsibilities of PMUs will include the following: ➢ DPWH will utilize the existing four Unified Project Management Office Clusters (for Roads, Bridges and Flood Control, Roads Management Cluster and Bridge Management Cluster for Output 1: road and bridge projects and Output 2: water projects for flood protection. ➢ Establish and maintain a monitoring framework for supported projects; ➢ DOTr established the PMU for Output 3: rail, public transport, port and airport projects. ➢ Provide all relevant information to the consultant teams; ➢ Provide all relevant information from any potential ODA assistance for priority projects supported by the loans; ➢ Contribute to review of consultant outputs and quality assurance; ➢ Monitor status of project preparation and implementation; ➢ Contribute to the technical and financial evaluation criteria of submitted proposals; ➢ Contribute in the preparation of procurement documentation; ➢ Prepare and submit projects to NEDA-ICC for review;

Project implementation organizations	Management Roles and Responsibilities
	➢ Lead quality assurance of the technical consultants' outputs, including review of consultant's deliverables; ➢ Confirm deliverable of the consultants for payment processing by PMU; ➢ Lead consultant performance evaluation upon completion of contract.
Asian Development Bank (ADB)	➢ Review and monitor implementation of the Project, including implementation arrangements, disbursement, procurement, and reporting; ➢ Assist in advance action; ➢ Select consultants on behalf of implementing agencies; ➢ Monitor schedules of activities, including funds flow; ➢ Review compliance with agreed loan covenants; ➢ Monitor effectiveness of safeguard procedures; ➢ Monitor the outcome of capacity building and training programs; ➢ Undertake a periodic review mission and midterm review mission with the Government; and ➢ Coordinate with development partners and other stakeholders on Project implementation. ➢ Facilitate and support discussions between the Government and consultants on technical and contractual issues.

ADB = Asian Development Bank; DOF = Department of Finance; DOTr = Department of Transportation; DPWH = Department of Public Works and Highways; ICC = Investment Coordinating Committee; NEDA = National Economic Development Authority; ODA = official development assistance; PMU = project management unit; TA = technical assistance.

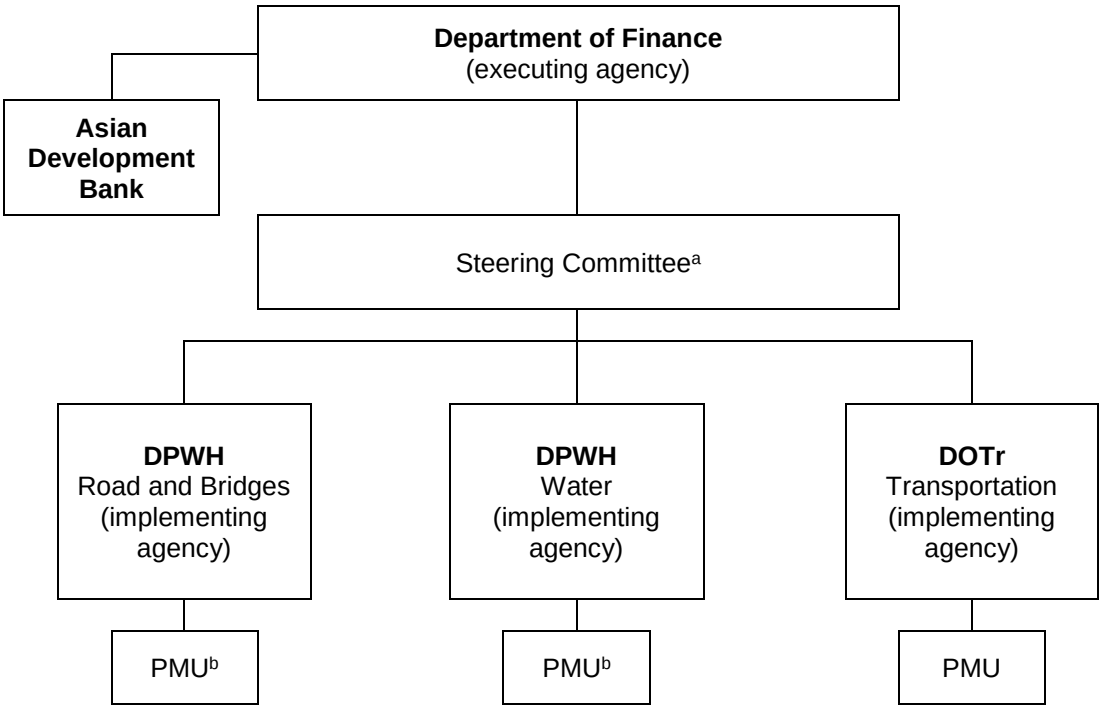
B. Key persons involved in implementation

Executing Agency	
Department of Finance – Office of the Secretary	Mr. Carlos G. Dominguez Secretary of Finance Telephone: +63 2 8523 6051 Fax: +63 2 8523 9216 Email: cgdominguez@dof.gov.ph Address: DOF Building, BSP Complex, Roxas Blvd., 1004, Metro Manila, Philippines
Project Coordination	Mr. Mark Dennis Y.C. Joven Undersecretary of Finance Telephone: +632 8523 4955 Fax: +63 2 8523 9216 Email: mdjoven@dof.gov.ph Address: DOF Building, BSP Complex, Roxas Blvd., 1004, Metro Manila, Philippines

Implementing Agencies	
1. Department of Public Works and Highways	Mr. Emil K. Sadain Undersecretary for Unified Project Management Office Operations Telephone: +63 2 8304 3372 Fax: +63 2 8304 3022 Email: sadain.emil@dpwh.gov.ph; sadainekmail@yahoo.com Address: Bonifacio Drive, Port Area, 1018 Metro Manila, Philippines
2. Department of Transportation	Mr. Ruben S. Reinoso Undersecretary for Planning Telephone: +63 2 8790-8300 loc.222 Email: rs.reinoso@dotr.gov.ph Address: Apo Court along Sergio Osmena Street, Clark Freeport Zone, Pampanga 2009
Asian Development Bank	
	Mr. Hiroaki Yamaguchi Director Tel: +63 2 8632 5433 Email: hyamaguchi@adb.org Address: Asian Development Bank 6 ADB Avenue, Mandaluyong, 1550 Metro Manila, Philippines Mr. Kelly Bird Country Director Tel: +63 2 8632 1002 Email: kbird@adb.org
Project Team	Mr. Shuji Kimura Transport Specialist/Mission Leader Tel: +63 2 8632 6466 Fax: +63 2 8636 2015 Email: skimura@adb.org

C. Project Organization Structure

29. Implementation arrangements are shown below:



DOTr = Department of Transportation; DPWH = Department of Public Works and Highways; NEDA = National Economic and Development Authority; PMU = project management unit.

[a] The Steering Committee comprises: DOF, DPWH, DOTr, NEDA, and Department of Budget and Management.

[b] DPWH will utilize four clusters of the Unified Project Management Office: (i) Road Management Clusters I and II and Bridge Management Cluster for road and bridge projects under Output 1; and (ii) Flood Control Management Cluster for water projects for flood protection under Output 2.

D. Implementation Arrangements

30. The DOF is the executing agency, and DOTr and DPWH are the implementing agencies.[17] The DOF has established a steering committee to monitor overall implementation of the project and ensure supported projects are prioritized for preparation and implementation. DOTr and DPWH established three PMUs, two PMUs under DPWH for road and bridge projects and for water projects, and one under DOTr for public transportation systems projects. Each PMU is headed by a director or any authorized official and supported by administrative staff to lead the preparation of infrastructure projects and oversee the consultant outputs.

31. An indicative list of projects to be supported under the project is provided in Appendix 1. The projects are based on the priorities as agreed with government during loan fact finding. During the implementation of the project, the list of projects may be amended and/or updated, as mutually agreed between ADB and the government.

[17] If requested, other government agencies may be considered for implementing agencies. In such cases, proper due diligence will be carried out.

32. The projects prepared under the project will normally cover such aspects as: (i) feasibility study; (ii) detailed design, including engineering, safeguards, project structure, economics analysis, financial assessment, procurement plan, and implementation arrangements; and (iii) preparation of procurement documents ready for tendering.

33. Timely budgeting for infrastructure investments identified and prepared under the project will be opened to funding from either government or ODA.

IV. COSTS AND FINANCING

34. The project estimated cost is $384 million, without the financing charges during the implementation period.

35. ADB provided a loan of $100 million and will provide an additional loan of $200 million from ADB's ordinary capital resources. The government will provide the equivalent of $105.7 million to finance part of the consulting services and taxes and duties.[18] Financing charges during implementation is estimated to be $21.7 million, which will be covered by the government through annual budget allocation. The financing plan is shown in Table 6.

Table 6: Financing Plan
($ million)

Source	Original		Additional Financing		Total	
	Amount ($ million)	**Share of Total** (%)	**Amount** ($ million)	**Share of Total** (%)	**Amount** ($ million)	**Share of Total** (%)
Asian Development Bank	100.0	61.0	200.0	82.8	300.0	73.9
Government	64.1	39.0	41.7	17.2	105.7	26.1
Total	**164.1**	**100.0**	**241.7**	**100.0**	**405.7**	**100.0**

[a] The government financing is inclusive of financing charges during implementation.
Source: Asian Development Bank and government estimates.

36. Climate adaptation is estimated to cost $0.2 million and climate mitigation is to cost $60 million. ADB will finance 82.8% of the mitigation and adaptation cost.[19]

A. Cost Estimates Preparation and Revisions

37. The cost estimates were prepared by ADB in consultation with DOF, DOTr and DPWH. The costs are based on the type of consultants required for the various outputs, taking account of their sector and working experience. Following the screening of projects costs estimates may be revised to reflect the focus of project support required, any such changes will be agreed between DOTr and/or DPWH and ADB.

B. Key Assumptions

38. The following key assumptions underpin the cost estimates and financing plan**:**

[18] The government's administrative costs are estimated at $2.31 million–$1.54 million for DPWH and $0.77 million for DOTr. These include airfares, per diem, and reimbursable expenses. However, this cost is not reflected in the project cost estimates. Only identifiable and quantifiable government costs are reflected in this section.

[19] Cost for climate change assessment for flood management projects is counted as adaptation and cost related to railway projects (urban mass transit) is counted as mitigation.

(i) exchange rate: P49.495 = $1.00 (as of 28 June 2017) for the original loan, P52.50 = $1.00 (as of 15 May 2019);

C. Detailed Cost Estimates by Expenditure Category

Table 7: Cost Estimates for the Original Loan by Expenditure Category
($ million)

	Cost	% of Total Cost
A. Investment Costs		
1. Consultants		
a. Roads and bridges	47.54	28.98
b. Water	31.36	19.13
c. Transportation	35.50	21.63
d. Specialist consultants	3.60	2.19
Subtotal (A)	**118.00**	**71.93**
B. Contingencies	24.86	15.15
Subtotal (B)	**24.86**	**15.15**
C. Taxes and Duties	17.13	10.44
Subtotal (C)	**17.13**	**10.44**
Total without Financing Charges (A+B+C)	**160.00**	**97.52**
D. Financing Charges During Implementation		
1. Interest During Implementation	4.06	2.48
Subtotal (D)	**4.06**	**2.48**
Total Project Cost (A+B+C+D)	**164.06**	**100.00**

Source: Asian Development Bank and government estimates.

Table 8: Cost Estimates for the Additional Loan by Expenditure Category
($ million)

Item	Cost	% of Total Cost
A. Investment Costs		
1 Consultants	180.00	74.48
Subtotal (A)	**180.00**	**74.48**
B. Contingencies		
1 Physical Contingencies	13.05	5.40
2 Price Contingencies	6.95	2.87
Subtotal (B)	**20.00**	**8.28**
C. Taxes and Duties	24.00	9.93
Subtotal (C)	**24.00**	**9.93**
Total without Financing Charges (A+B+C)	**224.00**	**92.69**
D. Financing Charges During Implementation		
1 Commitment Fee	0.71	0.30
2 Financing charges	16.93	7.02
Subtotal (D)	**17.68**	**7.31**
Total Project Cost (A+B+C+D)	**241.68**	**100.00**

Source: Asian Development Bank and government estimates.

D. Allocation and Withdrawal of Loan Proceeds

Table 9: Allocation and Withdrawal of the Original Loan Proceeds

Original allocation

Category	ADB Financing ($ million)		Percentage and basis for withdrawal from loan account
	Category	Sub-category	
1. Consulting services	80.39		
a. Roads and bridges		23.00	48.38% of total expenditure claimed
b. Water		28.25	90.08% of total expenditure claimed
c. Transportation		25.54	71.94% of total expenditure claimed
d. Specialist consultants		3.60	100.00% of total expenditure claimed
2. Unallocated	19.61		
Total	**100.00**		

Source: Asian Development Bank and government estimates.

After reallocation of loan funds in July 2019

Category	ADB Financing ($ million)		Percentage and basis for withdrawal from loan account
	Category	Sub-category	
1. Consulting services	100		
a. Roads and bridges		23.00	48.38% of total expenditure claimed
a-2 Roads and bridges		10.00	100.00% of total expenditure claimed
b. Water		28.25	90.08% of total expenditure claimed
c. Transportation		25.54	71.94% of total expenditure claimed
c-2 Transportation		9.61	100.00% of total expenditure claimed
d. Specialist consultants		3.60	100.00% of total expenditure claimed
2. Unallocated	0		
Total	**100.00**		

Source: Asian Development Bank and government estimates.

Table 10: Allocation and Withdrawal of the Additional Loan Proceeds

Item	ADB Financing ($ million) Category	Percentage and basis for withdrawal from loan account
1. Consulting services	200.00	100.00% of total expenditure claimed[a]
Total	**200.00**	

[a] Exclusive of tax and duties in the territory of the Borrower

Source: Asian Development Bank and government estimates.

E. Cost estimates by Funding Source

Table 11: Cost Estimates for the Original Loan by Fund Source
($ million)

	ADB		Government		Total
	Amount	**%**	**Amount**	**%**	
A. Investment Costs[a]					
1. Consultants					
a. Roads and bridges	23.00	48.38	24.54	51.62	47.54
b. Water	28.25	90.08	3.11	9.92	31.36
c. Transportation	25.54	71.94	9.96	28.06	35.50
d. Specialist consultants	3.60	100.00	0.00	0.00	3.60
Subtotal (A)	**80.39**	**68.13**	**37.61**	**31.87**	**118.00**
B. Contingencies					
Subtotal (B)	**19.61**	**78.88**	**5.25**	**21.12**	**24.86**
C. Taxes and Duties[b]					
1. Consultants					
a. Roads and bridges	0.00	0.00	6.12	100.00	6.12
b. Water	0.00	0.00	3.82	100.00	3.82
c. Transportation	0.00	0.00	6.74	100.00	6.74
d. Specialist consultants	0.00	0.00	0.45	100.00	0.45
Subtotal (C)	**0.00**	**0.00**	**17.13**	**100.00**	**17.13**
Total without Financing Charges (A+B+C)	**100.00**	**62.50**	**60.00**	**37.50**	**160.00**
D. Financing Charges During Implementation					
1. Interest During Implementation	0.00	0.00	4.06	100.00	4.06
Subtotal (D)	**0.00**	**0.00**	**4.06**	**100.00**	**4.06**
Total Project Cost (A+B+C+D)	**100.00**	**60.95**	**64.06**	**39.05**	**164.06**

Source: Asian Development Bank and government estimates.
[a] Net of taxes and duties that will be covered by the government.

Table 12: Cost Estimates for the Additional Loan by Fund Source

Item			ADB		Government		Total Cost
			Amount	% of Cost Category	Amount	% of Cost Category	
A.	**Investment Costs**[a]						
	1	Consultants	180.00	100.0%	0.00	0.0%	180.00
		Subtotal (A)	**180.00**	**100.0%**	**0.00**	**0.0%**	**180.00**
B.	**Contingencies**						
	1	Physical Contingencies	13.05	100.0%	0.00	0.0%	13.05
	2	Price Contingencies	6.95	100.0%	0.00	0.0%	6.95
		Subtotal (B)	**20.00**	**100.0%**	**0.00**	**0.0%**	**20.00**
C.	**Taxes and Duties**		0.00	0.0%	24.00	100.0%	24.00
	Subtotal (C)		**0.00**	**0.0%**	**24.00**	**100.0%**	**24.00**
Total without Financing Charges (A+B+C)			**200.00**	**89.29%**	**24.00**	**10.71%**	**224.00**
D.	**Financing Charges During Implementation**						
	1	Commitment Fee	0.00	0.0%	0.71	100.0%	0.71
	2	Financing charges	0.00	0.0%	16.96	100.0%	16.96
		Subtotal (D)	**0.00**	**0.0%**	**17.68**	**100.0%**	**17.68**
Total Project Cost (A+B+C+D)			**200.00**	**82.7%**	**41.68**	**17.3%**	**241.68**

Source: Asian Development Bank and government estimates.

[a] Net of taxes and duties that will be covered by the Government.

F. Cost Estimates by Output/ Component

Table 13: Cost estimates for the original loan by Output/Component

($ million)

Item	Output 1		Output 2		Output 3		Output 4		Total
	Amount	%	Amount	%	Amount	%	Amount	%	
A. Consulting services	47.54	76.48	31.36	71.58	35.50	67.02	3.60	70.45	118.00
B. Contingencies	7.34	11.81	7.20	16.43	9.44	17.82	0.88	17.22	24.86
C. Taxes and duties	6.12	9.85	3.82	8.72	6.74	12.72	0.45	8.81	17.13
Total without financing charges	**61.00**	**98.14**	**42.38**	**93.73**	**51.68**	**97.56**	**4.93**	**96.84**	**160.00**
D. Financing charges during implementation	1.16	1.86	1.43	3.26	1.29	2.44	0.18	3.52	4.06
Total	**62.16**	**100.00**	**43.81**	**100.00**	**52.97**	**100.00**	**5.11**	**100.00**	**164.06**

Source: Asian Development Bank and government estimates.

Table 14: Cost estimates for the additional loan by Output/Component

($ million)

Item	Output 1		Output 2		Output 3		Output 4		Total
	Amount	%	Amount	%	Amount	%	Amount	%	
A. Consulting services	94.50	74.5%	31.50	74.5%	50.00	74.5%	4.00	74.5%	180.00
B. Contingencies	10.50	8.3%	3.50	8.3%	5.56	8.3%	0.44	8.3%	20.00
C. Taxes and duties	12.60	9.9%	4.20	9.9%	6.67	9.9%	0.53	9.9%	24.00
Total without financing charges	**117.60**	**92.7%**	**39.20**	**92.7%**	**62.22**	**92.7%**	**4.98**	**92.7%**	**224.00**
D. Financing charges	9.28	7.3%	3.09	7.3%	4.91	7.3%	0.39	7.3%	17.68
Total	**126.88**		**42.29**		**67.13**		**5.37**		**241.68**

Source: Asian Development bank and government estimates.

G. Detailed Cost Estimates by Year

Table 15: Cost Estimates for the Original Loan by Year

($ million)

	2018	2019	2020	2021	Total
A. Consultants					
1. Road and bridges	20.45	8.55	9.98	8.56	47.54
2. Water	13.49	5.64	6.59	5.64	31.36
3. Transportation	14.21	12.03	5.63	3.63	35.50
4. Specialist consultants	1.34	1.13	0.65	0.48	3.60
B. Contingencies	10.22	6.04	4.78	3.82	24.86
C. Taxes and duties	6.15	5.83	3.00	2.15	17.13
Total without financing charges	**65.86**	**39.22**	**30.63**	**24.28**	**160.00**
D. Financing charges	0.73	0.85	1.26	1.22	4.06
Total	**66.59**	**40.07**	**31.89**	**25.50**	**164.06**

Source: Asian Development bank and government estimates.

Table 16: Cost Estimates for the Additional Loan by Year

Item	2020	2021	2022	2023	2024	Total
A. Consulting Services	8.96	66.22	80.79	17.53	6.51	180.00
B. Contingencies	0.00	1.49	3.66	7.72	7.13	20.00
C. Taxes and Duties	1.07	8.13	10.13	3.03	1.64	24.00
Total without financing charges	**10.03**	**75.84**	**94.59**	**28.28**	**15.27**	**224.00**
D. Financing Charges During Implementation	0.30	1.42	4.14	5.55	6.27	17.68
Total Project Cost	**10.33**	**66.22**	**98.72**	**33.83**	**21.54**	**241.68**

Source: Asian Development Bank and government estimates.

H. Contract Awards and Disbursement S-curve

Figure 1: Contract awards[20] and loan disbursement S curve
Original Loan

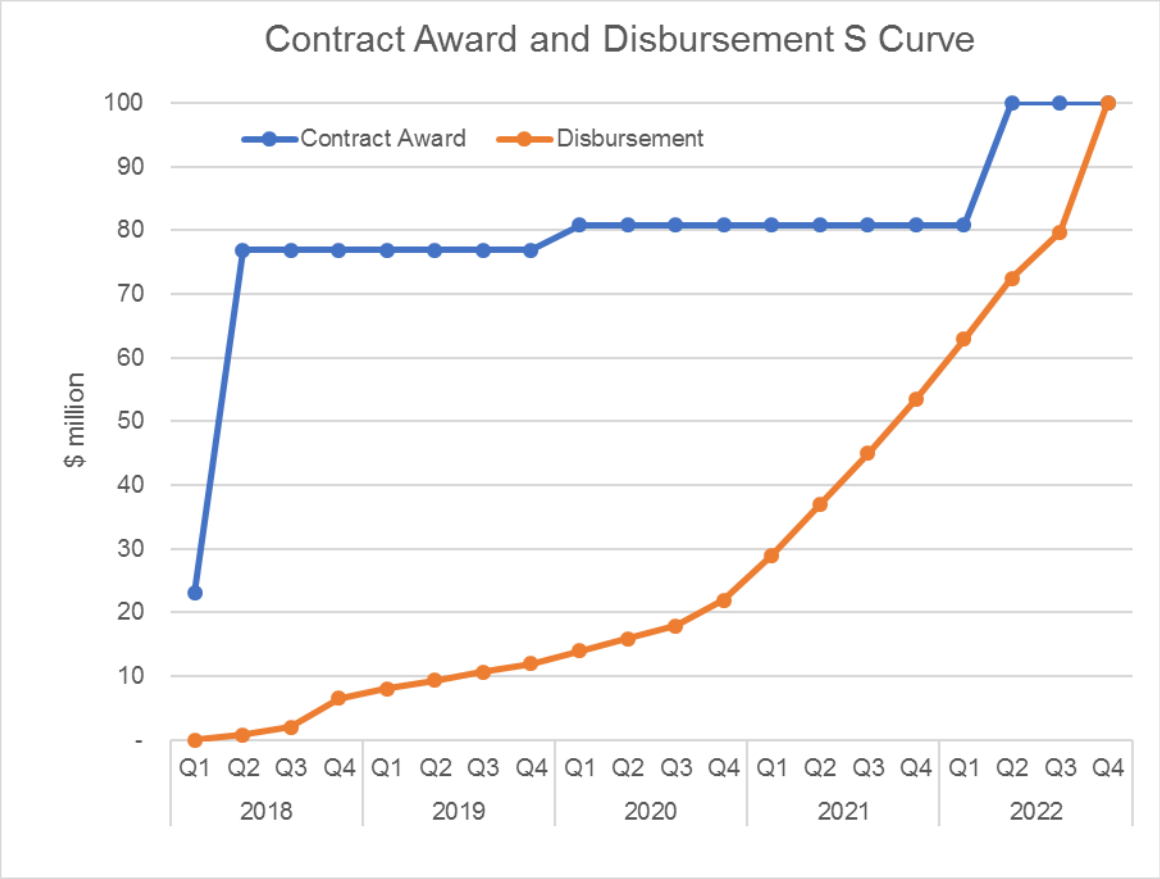


Table 17: Estimated quarterly and yearly contract awards and loan disbursements
Original Loan (as of 4 July 2019)

	Contract Award ($million)					Disbursement ($million)				
Year	**Q1**	**Q2**	**Q3**	**Q4**	**Total**	**Q1**	**Q2**	**Q3**	**Q4**	**Total**
2018	23.02	53.82	-	-	76.84	-	0.74	1.23	4.54	6.51
2019	-	-	-	-	-	1.50	1.30	1.30	1.30	5.40
2020	4.00	-	-	-	4.00	2.00	2.00	2.00	4.00	10.00
2021	-	-	-	-	-	7.00	8.00	8.00	8.50	31.50
2022	-	19.16	-	-	19.16	9.50	9.50	7.30	20.29	46.59
Total Contract Award:					100.00	Total Disbursements:				100.00

Source: Asian Development Bank and government estimates.

[20] Contract awards reflect project costs net of financing charges during implementation.

Figure 2: Contract awards and loan disbursement S curve
Additional Loan

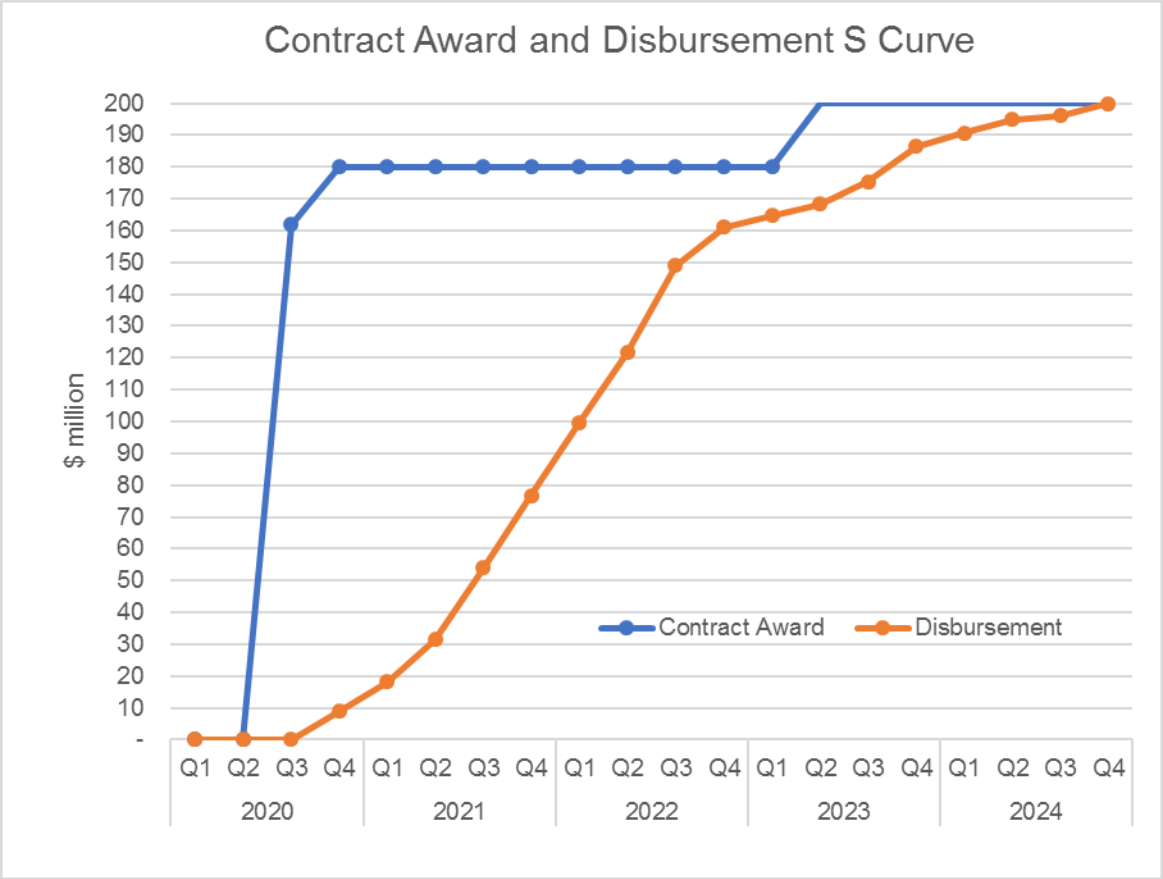


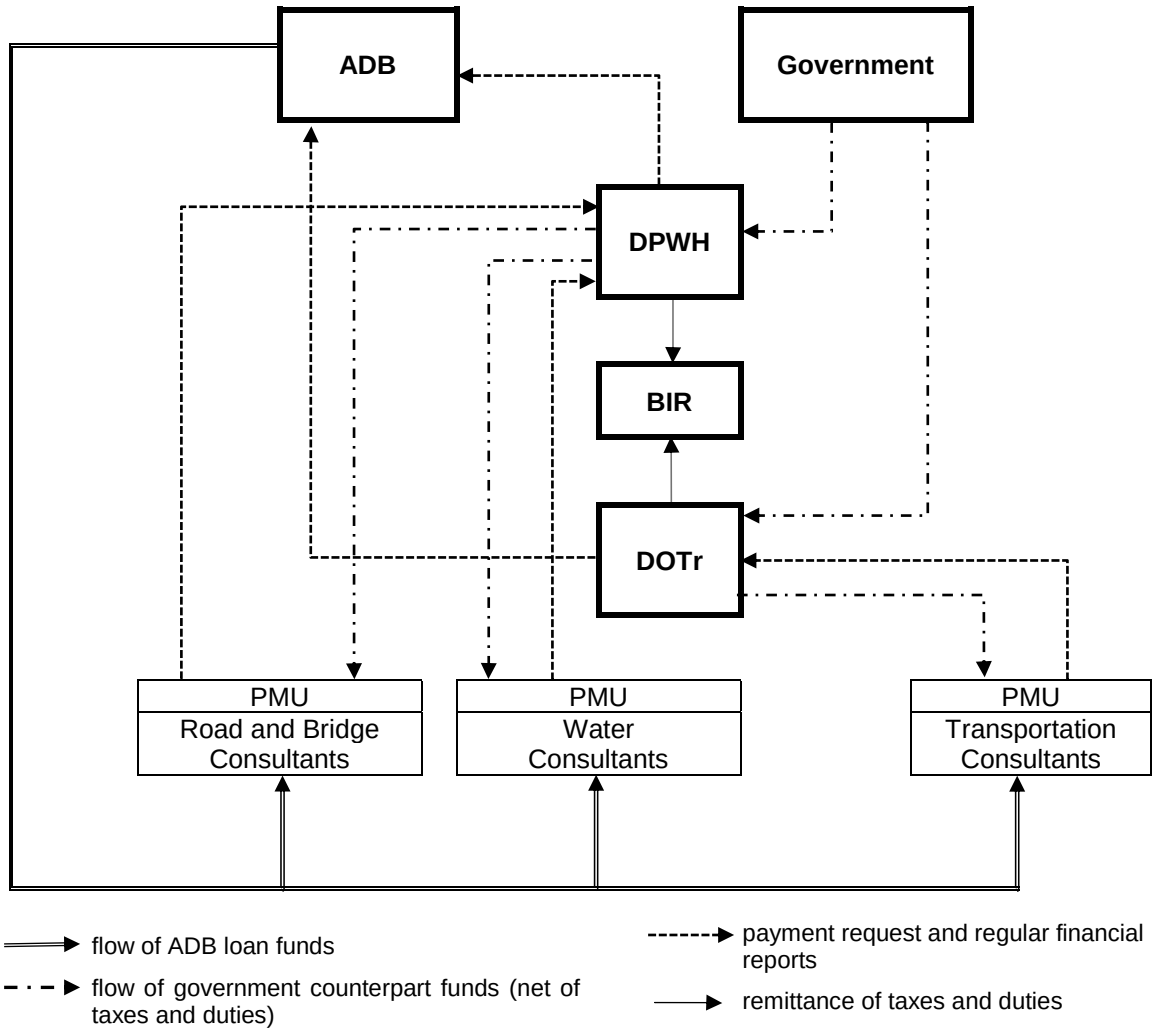
Table 18: Estimated quarterly and yearly contract awards and loan disbursements
Additional Loan

	Contract Award ($million)					Disbursement ($million)				
Year	**Q1**	**Q2**	**Q3**	**Q4**	**Total**	**Q1**	**Q2**	**Q3**	**Q4**	**Total**
2020	0.0	0.0	162.0	18.0	180.0	0.0	0.0	0.0	9.0	9.0
2021	0.0	0.0	0.0	0.0	0.0	9.2	13.2	22.6	22.6	67.7
2022	0.0	0.0	0.0	0.0	0.0	23.0	22.0	27.3	12.1	84.4
2023	0.0	20.0	0.0	0.0	20.0	3.7	3.7	6.9	11.0	25.3
2024	0.0	0.0	0.0	0.0	0.0	4.3	4.3	1.1	3.9	13.6
Total Contract Award:					200.00	Total Disbursements:				200.00

Source: Asian Development Bank and government estimates.

I. Fund Flow Mechanisms

Figure 3: General Fund Flow Diagram



ADB = Asian Development Bank; BIR = Bureau of Internal Revenue; DOF = Department of Finance; DOTr = Department of Transport; DPWH = Department of Public Works and Highway; PMU = project management unit.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

39. The DOF continues to be the executing agency for the additional financing, and DOTr and DPWH are the project implementing agencies. Overall, DOTr's and DPWH's financial management arrangements meet ADB requirements described under OM Section G2/BP, whereby the executing agency and implementing agencies are required to adopt sound accounting policies, adequate accounting records, proper internal control systems, timely reporting to management, and sound and timely auditing practices.

40. A financial management assessment (FMA) of DOTr and DPWH was conducted by ADB in March 2017 in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects and the Financial Due Diligence: A Methodology Note. The FMA considered the capacity of the DOTr and DPWH, including funds-flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements. The FMAs were updated in July 2019 which demonstrated that some fiduciary risks of the loan had been successfully mitigated. It was reported that though DOTr and DPWH have limited experience with implementation of the ADB-funded projects and adequate internal control, and that DOF has limited resources to coordinate and consolidate the preparation of the project financial statements, the original project had successfully set up a steering committee with strong leadership from the Undersecretaries of DOF, Department of Budget and Management, DOTr, DPWH, and NEDA, chaired by DOF Undersecretary. This will provide a venue for continuous engagement between all the parties involved in the planning, design and implementation of the project. The steering committee ensures sufficient system and controls are in place to minimize corruption risks, i.e. all payments are authorized according to funds available under specific budgets, the executing agency and implementing agencies' budget, disbursement, monitoring, and reporting systems are well developed and fully functioning.

41. In addition, TA9336-PHI is enhancing the capacity to improve project readiness and achieve effective implementation of the projects. One output of the TA is that project management capacity of the implementing agencies will be improved. ADB have engaged/will engage international experts for project management (including procurement, financial management, resettlement and safeguards) to review and asses the existing project management procedures of DOTr and DPWH to advise and work hand in hand with the technical staff. Project management manuals and workflow charts will be developed, using international best practices.

42. The assessment indicates that the overall pre-mitigation financial management risk of DOTr and DPWH is substantial with appropriate risk mitigation measures in place. The implementing agencies' financial management system is acceptable for the proposed project. The project and the nature of project expenditures (i.e. no civil works and no major procurement of goods), the provision of consultant support to the executing agency and implementing agencies involved in the project, and the provision of the TA to the implementing agencies prior to the project's effectivity, suggests that DOTr and DPWH can be considered as capable of implementing the project. A summary of the financial management and internal control risk assessment along with the financial management action plan is in Table 19.

Table 19: Summary of the Financial Management Risk Assessment and Mitigation Plan

Risk Description	Risk Assessment Without Mitigation	Mitigation Measures	Responsibility	Timeframe
Inherent Risk				
1. Country Specific Budget reliability, accounting and reporting and external scrutiny are weak.	Moderate	Continuation of PFM reforms by the Government of the Philippines through the following: (a) PFM Reform Roadmap; (b) Good Governance and Anti-Corruption Cluster Plan and (c) several stand-alone initiatives.	-	-
2. Entity-specific Several national government agencies will be involved in the project. Inadequate coordination among the agencies involved can significantly affect project implementation and reporting.	Moderate	A steering committee chaired by the Undersecretary of DOF has been created and include Undersecretaries of the DOTr, DPWH, and NEDA as members. This has provided a venue for continuous engagement between all the parties involved in the planning, design and implementation of the project.	-	-
Overall Inherent Risk	**Moderate**			
Project Risk				
3. Implementing Entity **DOTr and DPWH** • Limited experience of DOTr and DPWH with implementation of the ADB loan modality, including with financial management arrangements under ADB-funded projects. DOF, which will coordinate and consolidate the preparation of the project financial statements, have limited capacity to do so and will require assistance for this task.	Moderate	**DOTr and DPWH** • Individual consultants are mobilized under TA9336-PHI. to support financial management of the PMUs for Output 1,2 and 3. Also, a consultant is being recruited under TA9336-PHI to undertake the financial monitoring and reporting requirements for the loan at the executing agency. • In addition, ADB has provided training on ADB's disbursement guidelines and procedures to the relevant staff of the DOF, DOTr, and DPWH. ADB processed a $5 million TA of which one output is to review and assess existing project management procedures (including financial management) of the implementing agencies and to develop project manuals.	• DOTr • DPWH	6 months from loan effectiveness
4. Funds Flow / Experience with ADB Projects	Moderate		• DOTr	December 2019

Risk Description	Risk Assessment Without Mitigation	Mitigation Measures	Responsibility	Timeframe
DOTr • Limited experience of DOTr's Controllership Service and Finance & Management Services in implementation of ADB-funded projects, including financial management arrangements such as loan disbursement procedures. • IAS staff have limited understanding of ADB's guidelines and procedures including loan disbursement. **DPWH** • DPWH also has limited experience with the ADB loan modality possibly leading to inaccurate interpretation of ADB guidelines in disbursement and withdrawal of project funds.		**DOTr** • Controllership Service, Finance & Management Service and IAS staff to receive training of ADB's loan disbursement guidelines and procedures. **DPWH** • The disbursements process will be limited to direct payments by the ADB to consultants. In addition, consultants will be based at the PMUs to provide guidance to DPWH.	• DPWH •	
5. Staffing **DOTr** • Controllership Service and Finance & Management Services of the DOTr have adequate staff to handle the financial management related aspects of the project in addition to their regular workload. Further, they are in process of recruiting one more staff by end of 2019. **DPWH** • Existing staff members of the Accounting Division of DPWH will be assigned to handle the financial management of the project in addition to their regular workload. There is a possibility that the preparation of the project financial statements may be delayed. Staff may not be well-versed	Moderate	**DOTr** • Not required. **DPWH** • Consultants will be engaged to assist in the financial monitoring and reporting requirements and will be based at the PMUs. ADB will provide training on ADB's disbursement guidelines and procedures to the relevant staff of the DOF, DOTr, and DPWH. The relevant staff of the DPWH will also be given training to undertake the financial monitoring and reporting	• DPWH	December 2019

Risk Description	Risk Assessment Without Mitigation	Mitigation Measures	Responsibility	Timeframe
in ADB policies and procedures, and reporting requirements.		requirements for the loan. ADB will inform DPWH of the need to report/identify in the APFS expenditures funded by the ADB loan in accordance with the expenditure categories cited in the loan agreement.		
6. Budgeting **DOTr** • There have been cases of slow project implementation (local as well as foreign funded). This may lead to time and cost overrun and may impact the budget utilization rate. **DPWH** • Budgeting systems and procedures are adequate. DPWH uses the e-Budget which integrates the National Expenditure Program and the General Appropriations Act with allotment and cash programs, release of allotments and generation of budget reports. The budget release procedures have been streamlined to facilitate the release of budgetary obligations and allotments from the Department of Budget and Management to individual government agencies.	High	**DOTr** • Robust project planning and regular monitoring of project implementation progress. DOTr has recently started monitoring projects on a 24-hour construction schedule basis. • Timely escalation of project issues to DOTr's management for speedy resolution. **DPWH** • Not required	• DOTr •	Ongoing
7. Accounting Policies and Procedures **DOTr** • As DOTr have prepared project financial statement for FY2018, therefore, this risk is not applicable for DOTr	Substantial	**DOTr** • Not required	• DPWH	Ongoing

Risk Description	Risk Assessment Without Mitigation	Mitigation Measures	Responsibility	Timeframe
DPWH • The expenditure categories under the DPWH chart of account are different from those used in ADB projects. The accounting staff of the DPWH may not be able to prepare the project financial statements according to ADB's expenditure categories unless formally notified and oriented on the need to do so.		**DPWH** • The project will only finance consulting services (no civil works or major goods will be procured). ADB will inform DPWH on ADB's reporting requirements. A consultant will also be engaged to assist the PMUs in the financial monitoring and reporting function.		
8. Internal Audit **DOTr** • The IAS is not fully operational since seven positions are lying vacant. This may severely affect the discharge of internal audit functions and/or audit quality. • IAS (erstwhile IAO) is directly under the Office of Secretary, however, it currently reports to the Undersecretary for Finance. **DPWH** • The internal audit staff members are graduates of any bachelor's degree relevant to the job. They may not have formal training in internal audit. They may not do pre-audit of transactions, only post-audit. There is a possibility that irregularities and fraud may not be detected.	High	**DOTr** • The IAS is in process of filling up the position of the Head of the IAS. IAS to plan to fill up remaining vacant positions at the earliest. • IAS to directly report to the Office of the Secretary. **DPWH** • Consultants will be engaged to assist in the financial monitoring and reporting. • Internal audit staff to receive relevant training in discharging their functions and on PGIAM and NGICS.	• DOTr • DPWH	December 2019
9. External Audit **DOTr and DPWH** • COA is the external auditor. The COA is generally not able to complete the audit of the project financial	Substantial	• COA conducts its audits in accordance with Philippine Public Sector Standards on Auditing. In May 2016, COA issued Resolution No. 2016-007 adopting a revised framework of professional standards based on International	• DOTr • DPWH	Ongoing

Risk Description	Risk Assessment Without Mitigation	Mitigation Measures	Responsibility	Timeframe
statements within the ADB covenanted period which is 6 months after the end of fiscal year.		Standards of Supreme Audit Institutions and which are in harmony with the International Organization of Supreme Audit Institutions framework of professional standards. COA has sufficient knowledge of ADB's guidelines and procedures, including disbursements guidelines and procedures such as the *ADB Loan Disbursement Handbook*.		
10. Reporting and Monitoring **DOTr** • The COA have issued qualified opinions on the fairness of the presentation of DOTr's Financial Statements for FY2017 due to accounting errors and deficiencies. The recurring issue audit qualification/observation is the overstatement of inventory and property, plant and equipment. • There have been delays in submission of financial reports / documents to COA. **DPWH** • The COA issued adverse opinions on the fairness of presentation of the consolidated financial statements of the DPWH for FY2017 due to accounting errors and deficiencies affecting cash and cash equivalents, receivables, inventory, other current assets, property, plant and equipment and liabilities. Therefore, the consolidated financial statements cannot be relied upon. • There have been substantial delays in the APFS submission for the RIIDP.	High	**DOTr** • DOTr to resolve all the audit issues as per the action plan submitted to COA. • DOTr to adhere to the timelines for submission of the financial reports to COA. **DPWH** • The reporting requirements for the Project are straightforward and simple. It will only fund consulting services. The disbursements process will be limited to direct payments by the ADB to consultants. ADB will inform DPWH of the need to report/identify expenditures funded by the ADB loan in the APFS. • A consultant will also assist the PMU and DOF in ensuring timely and proper submissions of the APFS. • DPWH to resolve all the audit issues as per the action plan submitted to COA.	• DOTr • DPWH	Annually, on or before 30 June of the subsequent fiscal year

Risk Description	Risk Assessment Without Mitigation	Mitigation Measures	Responsibility	Timeframe
• The latest APFS (2017) presents the consolidated results of the project; it does not present the information on a per financier basis. The accounting system follows the chart of accounts mandated by the COA. Thus, expenditures categories used are different from those indicated in the ADB loan agreement. Therefore, the expenditures funded by the ADB loan cannot be determined from the APFS as required by the ADB.				
11. Information Systems **DOTr and DPWH** • Not all financial reports can be generated from the system. The preparation of the statement of cash flows requires manual intervention and the use of Excel, which may result in errors.	Substantial	**DOTr and DPWH** • The reporting requirements for the Project are straightforward and simple. It will only fund consulting services. A consultant will assist the PMU and DOF in ensuring timely and proper submissions of the APFS. • Digital Management Pilot Study for the projects is ongoing which will contribute to automating reporting system which ultimately include the financing system as well.	• DOTr • DPWH	Under IPIF, the study is ongoing and is expected to be completed by April 2020
12. Internal Control **DOTr** • Unreconciled difference between physical inventory and ledger balance to the tune of PhP322 million was observed in FY2017. • Control gaps exist in asset management such as incomplete physical verification of properties. • As at 31 December 2017, outstanding advances to the contractors/vendors	Substantial	**DOTr** • Only part of the unreconciled inventory difference is related to DOTr's Central Office. Further, in case of projects, the responsibility of maintaining and managing inventory lies with the Contractor. PMU of the project will be responsible for overall monitoring of the project implementation. A Project Management Supervision Consultant will also be appointed to assist PMU in the project implementation,	• DOTr • DPWH	December 2019

Risk Description	Risk Assessment Without Mitigation	Mitigation Measures	Responsibility	Timeframe
stands at PhP2.84 billion due to non-adjustment of advances at the time of progress billing, final settlement, etc. This may lead to excess payment to contractors/vendors.		supervision, and monitoring. For inventory related to Central Office supply items, DOTr Accounting Division and Supply Division to undertake reconciliation on monthly basis. • DOTr Central Office will be responsible for project implementation only. Upon project completion, it will be transferred to the end user. Thereafter, end user will be responsible for ensuring control mechanism with respect to physical verification of the project assets/properties. • Regular monitoring of outstanding advances through constant coordination between Accounting Division and PMU, follow up with the contractors for timely submission of progress / final invoice, and recoupment of advances from each invoice.		
Overall Project Risk	**Substantial**			
Overall (Combined) Risk	**Substantial**			

APFS = audited project financial statement; COA = Commission on Audit; DOF = Department of Finance; DOTr = Department of Transportation; DPWH = Department of Public Works and Highways; FY = fiscal year; IAS = Internal Audit Service; NEDA = National Economic Development Authority; NGICS = National Guidelines on Internal Control Systems PFM = public financial management; PGIAM = Philippine Government Internal Auditor's Manual; PhP = Philippine peso; PMU = project management unit; TRTA = transaction technical assistance.

B. Fund Flow/Disbursement Arrangements

(i) Disbursement Arrangements for ADB Funds

43. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),[21] and detailed arrangements agreed upon between the government and ADB in this project administration manual. The DOTr and DPWH will maintain separate accounts and records for the project. Project staff will avail of the ADB's disbursement training to help ensure efficient disbursement and fiduciary control.[22] The general fund flow diagram is in Figure 3.

44. The project will have two budget users: the DOTr and DPWH. Budget holders have established PMUs, which are headed by an Under Secretary or Assistant Secretary or any other authorized official. In the case of DPWH, two PMUs were established, each for road and water projects groups. The budget users will be responsible for managing the payment for all goods and consultant services procured under the project. Cost estimates by budget user are in Table 20.

Table 20: Cost Estimates by Budget User
($ million)

		Original Loan	Additional Loan	Total	% of Total Cost
A.	Department of Public Works and Highways	80.70	126.00	207.30	51.09
B.	Department of Transportation	37.30	54.00	80.70	19.89
C.	Contingencies	24.86	20.00	44.86	11.06
C.	Taxes and Duties	17.13	24.00	41.13	10.13
D.	Financing Charges During Implementation				
	- Interest During Implementation	4.06	17.68	21.74	5.36
Total Project Cost		**164.05**	**241.68**	**405.73**	**100.00**

Source: List of Planned Priority Projects.

45. **Direct payment procedure**. The project will use the direct payment procedure of ADB. The payments to the consultants will be made directly by ADB, based on the payment requests of the DOTr and DPWH (in the form of withdrawal applications along with the necessary supporting documents). The government will cover some of the consulting services under the original loan and the tax share of the consultant contracts under both the original and additional loans through payment to the consultants or through other allowed means in line with Philippine's taxation framework. Notwithstanding the foregoing, the assumption of the government of taxes due to the consultants is subject to the compliance of the same to the rules and regulations of the government

46. Before the submission of the first withdrawal application request to the additional loan, the borrower will submit to ADB sufficient evidence of the authority of the persons 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 set in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below this amount will be paid by the executing/implementing agencies and subsequently claimed to ADB through reimbursement of unless otherwise accepted by ADB. The borrower should ensure sufficient category and contract balances before requesting

[21] Available at: http://www.adb.org/documents/loan-disbursement-handbook.
[22] Online training for project staff on disbursement policies and procedures is available at: http://wpqr4.adb.org/disbursement_elearning.

disbursements. Use of ADB's Client Portal for Disbursements (CPD) system is encouraged for submission of withdrawal applications to ADB

47. The PMUs will be responsible for preparing the annual contract awards and disbursement projections; requesting budgetary allocations for counterpart funds, preparing of withdrawal applications, and sending the withdrawal applications to ADB through DOF. The PMUs are responsible for collecting and maintaining supporting documents for the project expenditures they have incurred. The PMUs shall submit regular financial reports to the executing agency for consolidation and submission to ADB.

48. Sample forms for withdrawal applications of loan proceeds can be downloaded from the ADB website.[23]

(ii) Disbursement Arrangements for Counterpart Fund

49. The government will finance part of the consulting services under the original loan and local taxes and duties under the original and additional project.

C. Accounting Policies

50. The DOTr and DPWH will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project following accrual-based accounting following the Philippine Public Sector Accounting Standards (PPSAS). The DOTr and DPWH will prepare the respective project financial statements in accordance with PPSAS which are consistent with international accounting principles and practices. DOF will prepare the consolidated project financial statements for submission to ADB.

D. Auditing and Public Disclosure

51. DOTr and DPWH will have their respective financial statements audited by the Commission on Audit following the Philippine Public Sector Standards on Auditing. The annual audit reports for the project will include: (i) an auditor's opinion on whether the project financial statements present a true and fair view of the financial position of the project in accordance with the applicable financial reporting standards; (ii) additional auditor's opinion on the use of loan proceeds; and a (iii) management letter.

52. DOTr and DPWH will submit the audited project financial statements to DOF for compilation. DOF will prepare a summary and submit it to ADB together with the audited financial statements of DOTr and DPWH within six months from the end of fiscal year. Audited project financial statements together with the auditor's opinion will be presented in the English language.

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

54. The government, DOF, DOTr, and DPWH have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited

[23] Available at: http://www.adb.org/documents/handbooks/loan_disbursement/default.asp.

project financial statements.[24] ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided 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.

55. Public disclosure of the project financial statements, including the auditor's opinion on the project financial statements, will be guided by ADB's Access to Information Policy 2018.[25] After review, ADB will disclose the audited project financial statements and the opinion of the auditors on the project financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter and additional auditor's opinions will not be disclosed.[26]

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Procurement and Retroactive Financing

56. **Advance contracting.** All advance contracting will be undertaken in conformity with ADB's Procurement Policy (2017, as amended from time to time) and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time). The borrower, DOTr and DPWH have been advised that approval of advance contracting does not commit ADB to finance the project. ADB financing is subject to the government's compliance of the relevant provisions of the loan agreement and ADB guidelines. The government was also advised that ADB would not finance expenditures incurred by the government prior to loan effectiveness, even if advance contracting is approved by ADB.

57. The government requested ADB to undertake consultant selection on their behalf.[27] The following steps for the recruitment of consultants can be concluded prior to loan effectiveness: (i) joint government-ADB workshop on procurement; (ii) pre-EOI conference with government, ADB, and prospective bidders; (iii) joint preparation of the terms of reference, cost estimates, and shortlisting evaluation criteria between government and ADB; (iv) advertisement for expression of interests; (v) shortlisting of consulting firms; (vi) issuance of the request for proposals; (vii) evaluation of technical proposals;(viii) evaluation of financial proposals and final ranking; and (ix) implementing agencies will negotiate and sign the contract with the first-ranked consultants for each package.

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[24] ADB Policy on delayed submission of audited project financial statements: When audited project financial statements (APFS) are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next 6 months, requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.

(i) When the AFPS has not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.

(ii) When the APFS has not been received within 12 months after the due date, ADB may suspend the loan.

[25] Available from https://www.adb.org/documents/access-information-policy.

[26] This type of information would generally fall under public communications policy exceptions to disclosure. ADB. 2011. *Public Communications Policy.* Paragraph 97 (iv) and/or 97 (v).

[27] Government request letter was dated 15 June 2017 for original loan. For additional loan, the government requested the delegation of the selection during the fact-finding mission and confirmed in the MOU of the mission.

58. The ADB will advertise all consulting opportunities in Consulting Services Recruitment Notice at www.adb.org, carry out the shortlisting, issue request for proposals, and evaluate proposals in close coordination with government agencies. The government will negotiate and sign the contract with first-ranked consultants for each of the packages promptly. Since the recruitment of consultants follows ADB's *Procurement Regulations for ADB Borrowers* (2017, as amended from time to time) as specified in the loan agreement, the government agencies (DOTr and DPWH) will use the evaluation carried out by ADB as basis for contract negotiations and award.

B. Procurement of Goods, Works and Consulting Services

59. There is no procurement of goods and works under the original and additional financing; procurement of office equipment and furniture for the consultants will be carried out by the consultants under their contract in accordance with ADB's *Procurement Regulations for ADB Borrowers* (2017, as amended from time to time).

60. All consultants under the advance contracting will be recruited according to ADB's Procurement Policy (2017, as amended from time to time) and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time).

61. Under the original financing, consultants have been selected following quality-based selection with full technical proposals to ensure highest possible standard of services. Three retainer contracts will be awarded, one for each of output 1, 2 and 3. Each contract will be awarded to one firm for the entire range of services for priority investments under its respective output. For each assignment, the consultant will be required to prepare a technical and financial proposition that will be reviewed and agreed with the implementing agencies, possibly with the assistance of consultants under output 4, and approved by ADB. Upon approval of the proposition, the consultant will carry out the services at the agreed price under the retainer contract.

62. Under the additional financing, consultants will be selected following quality-cost based selection with full technical proposals or individual consultant selection. Each contract will be awarded to one firm for each subproject.

63. All the consultant contracts ongoing or to be processed under the original financing will continue to follow ADB's *Guidelines on the Use of Consultants* (March 2013, as amended from time to time).[28]

64. The Client for the consultancy contracts will be the government through DOTr and DPWH. Payments to the consultants will be from the proceeds of the loan in accordance with the ADB loan disbursement handbook.[29]

65. The overall risks associated with the procurement are rated as *"low"*.

66. The project's overall procurement classification is assessed as *low risk*. The integrated benefits and impacts are expected to outweigh the costs.

[28] Available at: https://www.adb.org/documents/guidelines-use-consultants-asian-development-bank-and-its-borrowers

[29] Available at: https://www.adb.org/documents/loan-disbursement-handbook

C. Procurement Plan

67. An 18-month procurement plan indicating methods, review procedures and estimated schedule is in Section C of procurement plan in Appendix 2.

68. The procurement plan is prepared in accordance with the template provided in Guidance Notes for Strategic Procurement Plan published by ADB in June 2018. The packaging, procurement methodology, bidding process, review requirements are based on the “strategic procurement planning process” considering the operating environment, risks and market analysis.

D. Consultant's Terms of Reference

69. The outline TORs of consultants to be engaged under the project are presented in Appendix 3.

VII. SAFEGUARDS

A. Environmental Safeguards

70. The environmental safeguards classification for the Project is confirmed as category C as there will be no direct financing for infrastructure project or any type of civil works that may pose environment threat. Therefore, there will be no impact on environment arising from implementation of this project funded project.

B. Involuntary Resettlement Safeguards

71. The involuntary resettlement safeguards classification for the project is confirmed as category C as there will be no direct financing for infrastructure projects or any type of civil works. Therefore, there will be no resettlement impact arising from implementation of this project funded project.

C. Indigenous Peoples

72. The indigenous peoples classification for the project is confirmed as category C as there will be no impacts on indigenous people arising from implementation of this project funded project. Indigenous peoples are not specifically targeted and the project neither affects the dignity, human rights, livelihood system or culture of indigenous peoples nor affects the territories or natural or cultural resources that indigenous peoples own, use, occupy, or claim as an ancestral domain or assets.

D. Safeguards support through consultants

73. For each investment project, the consultants will conduct a safeguard review as part of its overall due diligence including environmental impact assessment, and social impact assessments, resettlement and land acquisition, gender, and indigenous people impact assessment, and prepare necessary safeguard documentation as part of the feasibility study and detailed design of the project.

74. The consultants will also provide on-the-job training and transfer of knowledge to staff of DOTr and DPWH to ensure sustainability in the preparation and implementation of environmental and social safeguard assessment and mitigation measures in accordance with applicable laws,

regulations, and procedures. The consultant will provide support and guidance to strengthen and enhance improvement of regulations or procedures for environmental and social safeguards, and strengthening safeguard units, task force, safeguards focal points for coordination and monitoring.

E. Prohibited Investment

75. Pursuant to ADB's *Safeguard Policy Statement* (2009),[30] ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS. All financial institutions will ensure that their investments are in compliance with applicable national laws and regulations and will apply the prohibited investment activities list to subprojects financed by ADB.

VIII. GENDER AND SOCIAL DIMENSIONS

76. The project supports preparation of public investment projects. Hence, there is no direct adverse impact on gender inequality or a negative impact on women. Nevertheless, the project will ensure gender equality and impact on women will be suitably mainstreamed in the scope of work of consultants that will be engaged for preparation of infrastructure projects.

77. The direct beneficiaries of the project will be DOTr and DPWH staff (in terms of capacity building, institutional strengthening, and know-how transfer). Indirect beneficiaries of the project will be communities that will have increased access to markets and services through higher standard infrastructure investments to be implemented as a result of the project.

78. The project will ultimately positively affect the consumers, employees, and the poor in general, as they suffer the most from lack of economic infrastructure. Enterprises will benefit from better competitiveness due to better infrastructure and reduced logistics costs. Consumers will gain from greater domestic competition because it will lower prices and improve services. Employees will gain from easier access to work and increased income opportunities, including the construction and operation of infrastructure facilities and in better-paid jobs such as in manufacturing. The poor, especially in low-income regions, will benefit because improved connectivity allows them to participate in wealthier urban markets.

79. Overall, the project is pro-poor as it will directly support the government to achieve the infrastructure development goals reflected through pro-poor preparation as well as timely and adequate delivery of public infrastructure to the beneficiaries. Improved infrastructure will help reduce the vulnerability of the poor or the likelihood that the near-poor will fall into poverty as a result of shocks, which remains an issue in the Philippines.

80. The labor and consumer good markets will be among the most important channels: (i) higher basic infrastructure investments will directly and indirectly create more decent and productive jobs; and (ii) reduced logistics costs will lead to lower consumer prices and a better variety of products.

81. Qualified social and environmental safeguards experts of the consultant firms will support the PMUs in supervision of the preparation of the projects. The PMUs will monitor and report to the relevant executing agency on all social and environmental safeguards activities. Adequate analysis of the gender, labor, HIV/AIDs, and other social risks will be mainstreamed in the project

[30] Available at: http://www.adb.org/sites/default/files/pub/2009/Safeguard-Policy-Statement-June2009.pdf

preparation documents supported under the Project.[31] The PMUs will be responsible to ensure that relevant sections of the TORs and consultant budgets adequately reflect the social and gender aspects to be assesses and considered in project preparation. The PMUs will also ensure that project preparation consultants properly analyze and incorporate core labor standards and health and environmental conditions at worker camps in relevant project documents.

82. The project will—indirectly and with some lag—contribute to improving gender equity in the Philippines through mainstreaming of gender responsiveness in the preparation and implementation of public investment projects in accordance with the country's legislation and international best practice, including ADB gender guidelines.[32]

83. Consultation and participation will be also mainstreamed in the TORs and budgets of the project preparation consultants that will be financed under the project. When and where applicable, the consultation and participation during project preparation will draw on ADB's principles on consultation and participation.[33] The PMUs, will be responsible to ensure that relevant sections of the TORs and consultant budgets adequately reflect consultation and participation activities during project preparation.

84. The PMUs will be primarily responsible for monitoring of incorporation of gender, social and consultation and participation dimensions during implementation during project preparation by the project-engaged consultants.

[31] *Briefing Note: Project Gender Action Plans*:http://www.adb.org/Documents/Brochures/Project-Gender-Action-Plans/default.asp, and *Updated Gender Mainstreaming Categories of ADB Projects*: https://lpedgedmz.adb.org/lnadbg1/ocs0178p.nsf/0/37CC7D6E8E3CC57D482576E20083C156?OpenDocument.

[32] For example, the Philippine experience of mainstreaming gender responsiveness in ODA-funded projects will be considered for appropriate adoption under the project.

[33] *Staff Guide to Consultation and Participation*: http://www.adb.org/participation/toolkit-staff-guide.asp and, *CSO Sourcebook: A Staff Guide to Cooperation with Civil Society Organizations*: http://www.adb.org/Documents/Books/CSO-Staff-Guide/default.asp.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

Impact the Project is Aligned with **Current project** Infrastructure development accelerated (Philippine Development Plan, 2017–2022)[a] **Overall project** Unchanged

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome **Ongoing project** Delivery and quality of public infrastructure projects improved	**Ongoing project** By 2022: a. Project approval time reduced to at most 10 months (2016 baseline: 18 months) b. Project start-up time shortened to at most 18 months (2016 baseline: 36 months between approval and start-up)	a. NEDA approvals and annual performance reports by DOTr and DPWH b. Progress reports by DOTr and DPWH	Political support declines Limited availability of official development assistance funding
Overall project Unchanged	**Overall project** By 2025: a. Unchanged b. Unchanged c. $30 billion of public infrastructure investment approved by NEDA's Investment Coordination Committee and procured with ADB support (2016 baseline: $0)	a. Unchanged b. Unchanged c. NEDA approvals and annual performance reports by DOTr and DPWH	
Outputs **Output 1** **Ongoing project** 1. Road and bridge projects prepared	**Ongoing project** By 2022: 1a. Up to five road and bridge projects identified, feasibility studies and detailed design completed, and project documents prepared and ready for tendering (2016 baseline: 0)	1a. DPWH progress reports	Limited experience with financial management arrangements of ADB-funded projects

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Overall project Unchanged	**Overall project** By 2024: 1a. Up to 10 road and bridge projects identified, feasibility studies and**/**or detailed design with climate proofing components completed, and project documents prepared and ready for tendering (2016 baseline: 0) 1b. DEDs and/or draft negotiated contracts for projects with a total estimated investment value of $6 billion prepared (2016 baseline: $0)	1a.–1b. DPWH progress reports	
Output 2 **Ongoing project** 2. Water projects prepared	**Ongoing project** By 2022: 2a. Up to five flood-protection and urban water projects identified, feasibility studies and detailed design completed, and project documents prepared and ready for tendering (2016 baseline: 0)	2a. DPWH progress reports	
Overall project Unchanged	**Overall project** By 2024: 2a. Up to 10 flood-protection and urban water projects identified, feasibility studies and/or DEDs with climate proofing components completed, and project documents prepared and ready for tendering (2016 baseline: 0) 2b. DEDs and/or draft negotiated contracts for projects with a total estimated investment value of $4 billion prepared (2016 baseline: $0)	2a.–2b. DPWH progress reports	

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Output 3 **Ongoing project** 3. Rail, public transport, port, and airport projects prepared	**Ongoing project** By 2022: 3a. Up to five rail, public transport, port, and airports projects identified; feasibility studies and detailed design completed; and project documents prepared and ready for tendering (2016 baseline: 0)	3a. DOTr progress reports	
Overall project Unchanged	**Overall project** By 2024: 3a. Up to 10 rail, public transport, port, and airports projects identified; feasibility studies and/or detailed design with climate proofing components completed; and project documents prepared and ready for tendering (2016 baseline: 0) 3b. DEDs and/or draft negotiated contracts for projects with a total estimated investment value of $20 billion prepared (2016 baseline: $0)	3a.–3b. DOTr progress reports	
Output 4 **Ongoing project** 4. Project management capacity of the government improved	**Ongoing project** By 2022: 4a. Road, bridge, flood protection, urban water, rail, public transport, port, and airport projects identified and include gender design features and gender targets (2016 baseline: 0 projects) 4b. Project planning and preparation manual prepared and approved, following gender mainstreaming guidelines (2016 baseline: not prepared) 4c. 50 DPWH and DOTr staff trained in project	4a.–4c. DPWH and DOTr progress reports	Insufficient qualified counterpart staff

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
	planning and preparation (at least 40% are women) (2016 baseline: 0 staff) **Overall project** By 2024: 4a.–4c. unchanged		
Overall project Unchanged	4d. Training and project implementation support provided for up to five projects (2016 baseline: 0 projects)	4a.–4c. Unchanged 4d. DPWH and DOTr progress reports	

Key Activities with Milestones

1. Road and bridge projects prepared

1.1 Carry out feasibility studies (Q2 2018–Q2 2020) (changed, ongoing)
1.2 Conduct surveys (Q2 2018–Q4 2020) (changed, ongoing)
1.3 Complete project designs, including engineering, safeguard, project structure, economic analysis, financial assessment, procurement plan, and project implementation arrangements (Q12019–Q2 2024) (changed, ongoing)
1.4 Prepare procurement documents and ready for tendering (Q1 2022–Q4 2024) (changed)

2. Water projects prepared

2.1 Carry out feasibility studies (Q2 2018–Q2 2021) (changed, ongoing)
2.2 Conduct surveys (Q2 2018–Q1 2021) (changed, ongoing)
2.3 Complete project designs, including engineering, safeguard, project structure, economic analysis, financial assessment, procurement plan, and project implementation arrangements (Q1 2019–Q1 2024) (changed, ongoing)
2.4 Prepare procurement documents and ready for tendering (Q2 2020–Q4 2024) (changed)

3. Rail, public transport, port, and airport projects prepared

3.1 Carry out feasibility studies (Q2 2018–Q2 2021) (changed, ongoing)
3.2 Conduct surveys (Q2 2018–Q1 2021) (changed, ongoing)
3.3 Complete project designs, including engineering, safeguard, project structure, economic analysis, financial assessment, procurement plan, and project implementation arrangements (Q2 2018–Q1 2024) (changed, ongoing)
3.4 Prepare procurement documents and ready for tendering (Q3 2018–Q4 2024) (changed, ongoing)

4. Output 4 – Project management capacity of the government improved

4.1 Prepare project preparation and/or implementation manuals (Q2 2020–Q1 2022) (ongoing)
4.2 Approve project preparation and/or implementation manuals (Q4 2020–Q4 2022) (changed, ongoing)
4.3 Conduct training and provide project implementation support to DOTr and DPWH staff (Q2 2018–Q4 2024) (changed)

ADB = Asian Development Bank; DOTr = Department of Transportation; DPWH = Department of Public Works and Highways; ICC = Investment Coordination Committee; IPIF = Infrastructure Preparation and Innovation Facility; NEDA = National Economic Development Authority; Q = quarter.

[a] Government of the Philippines, National Economic and Development Authority. 2017. *Philippine Development Plan 2017–2022*. Manila.

Source: Asian Development Bank.

B. Monitoring

85. **Project performance monitoring**. The PMUs will be responsible for monitoring and reporting on the performance of the Project against indicators and targets contained in the design and monitoring framework. A monitoring and evaluation (M&E) consultant will be recruited to support the PMUs to set up the M&E system and reporting framework. Progress against the participatory planning, monitoring, and evaluation indicators will be reported quarterly, and annually by DOF to ADB as part of the overall progress reports prepared by the PMUs with assistance from the consultants.[34]

86. **Compliance monitoring**. The Project will be reviewed jointly by government and ADB twice a year during ADB's administration missions that will assess implementation progress and compliance with loan agreement's covenants. Compliance will be also monitored through quarterly progress reports submitted, as well as through review of project accounts and procurement procedures.

87. The DOTr and DPWH will ensure that (i) the project funding is utilized based on procurement and financial management procedures agreed by the government and ADB, and (ii) all viable project-prepared projects are prioritized for inclusion in the DOTr and DPWH budget for the year in which the commencement of the civil works is expected to start.

88. A midterm review was carried out by the government and ADB in June 2019.The government and ADB (i) evaluated the scope, design, and implementation arrangements of the project; (ii) evaluated the progress of the institutional development and capacity of the implementing agencies; ; (iii) assessed the implementation performance against agreed project indicators and targets; (iv) reviewed and established compliance with the loan covenants; and (v) reallocate the funds in Unallocated category.

C. Evaluation

89. Within 6 months of physical completion of the project, the executing agency will submit a project completion report to the ADB.[35] The consultants will support the DOTr and DPWH in collecting the relevant data and drafting their project completion reports.

D. Reporting

90. The executing agency will provide ADB with (i) consolidated 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 completion report within 6 months of completion of project preparation work fora project. Project accounts together with the associated auditor's report, should be adequately reviewed. The template for the quarterly progress report is in Appendix 4.

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[34] The PMUs will submit regular monthly progress reports to their respective agency, who in turn will report to the Steering Committee and DOF. DOF will consolidate and submit quarterly and annual reports to ADB, reporting on the Project as a whole.

[35] Project completion report format is available at: http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar

C. Stakeholder Communication Strategy

91. The primary objective of the Stakeholder Communication Strategy will be ensuring the regular and proactive sharing of information with key stakeholders, and ensuring coordinated information sharing between the steering committee, DOTr and DPWH. Key immediate stakeholders include DOTr and DPWH and the project preparation consultants. On a wider basis, stakeholders will also include development partner financiers, consultants, contractors and suppliers under the public investment projects, civil service organizations interested in infrastructure development, as well as the public, who will benefit from infrastructure investments. Participation of stakeholders during project implementation will be facilitated through interaction during administration missions and Project-associated events. Given the project's institutional and project preparation support focus, no direct participation by the infrastructure project stakeholders, or end-users is envisaged.

92. International Financing Group in DOF is the focal point under the steering committee to manage and respond to stakeholder inquiries, to ensure regular information sharing with other stakeholders, two-way information flow between key stakeholders, and coordinated public dissemination of project progress and achievements. The PMUs of DOTr and DPWH are responsible for implementing and monitoring information dissemination and disclosure in their respective areas, and both identified a communication focal point designated for regular contact and information sharing with interested stakeholders, and with the steering committee's communication focal point. The consultants' support will include providing assistance and guidance on the implementation of the Stakeholder Communication Strategy

93. **Delivering information.** Information about the Project will be delivered through a public information booklet (PIB) that describes the project's objectives, components, and activities. The consultants will provide the required inputs to the PIB. Written in English, the PIB, which will be updated annually, will make the project comprehensible to a wide range of stakeholder groups. In addition to the PIB, a Project webpage will be established under the steering committee's communication focal point–within 6 months after loan effectiveness–to disclose the status of Project implementation, and proactively share project information and progress with interested stakeholders. Pursuant to ADB's Public Communications Policy (2011), all requisite project documents will be posted on the ADB website.

94. **Obtaining Feedback.** The PIB will indicate where stakeholders can get in touch with Project implementers. Stakeholder meetings will ensure that accurate and sufficient feedback will be received from stakeholder groups. Communication focal points will respond to and register stakeholder inquiries.

X. ANTICORRUPTION POLICY

95. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.[36] 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.[37] To support these

[36] Available at: http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf.
[37] ADB's Integrity Office web site is available at: http://www.adb.org/integrity/unit.asp.

efforts, relevant provisions are included in the loan agreement/regulations and the bidding documents for the project.

96. The ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the DOF, DOTr, DPWH, and NEDA. ADB will require the Borrower to institute, maintain, and comply with internal procedures and controls following international best practice standards in preventing corruption or money laundering activities or the financing of terrorism and covenant with ADB to refrain from engaging in such activities. Consistent with its commitment to good governance, accountability, and transparency, ADB reserves the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the project. All contracts financed by ADB in connection with the project shall include provisions specifying the right of ADB to audit and examine the records and accounts of the DOTr and DPWH and all contractors, suppliers, consultants, and other service providers as they relate to the project. Any allegations of corruption can be reported to the PMUs, who will report these to the project steering committee.

97. The DOTr and DPWH will ensure that all its staff involved in the project are fully aware of and comply with the government's and ADB's procedures, including procedures for implementation, procurement, use of consultants, disbursement, reporting, monitoring, and prevention of fraud and corruption.

XI. ACCOUNTABILITY MECHANISM

98. 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.[38]

XII. RECORD OF PAM CHANGES

99. All revisions/updates during course of implementation should retain in this Section to provide a chronological history of changes to implemented arrangements recorded in the PAM.

100. Revision was made in table Allocation and Withdrawal of the Original Loan Proceeds is modified following the reallocation of the loan proceeds in July 2019.

101. Revisions were made in the Procurement Plan in August and November 2019.

102. Revision was made in section D. Auditing and Public Disclosure in V. Financial Management to follow the actual process of preparation and submission of the audited project financial statements in November 2019.

103. Revision was made in November 2019, in Direct payment procedure in Disbursement Arrangements for ADB funds to allow the DOTr and DPWH to submit WAs directly to ADB.

[38] For further information see: http://www.adb.org/Accountability-Mechanism/default.asp.

104. Following revisions has made upon the approval of the additional financing to the project:

(i) Agency Roles and Responsibility is modified.
(ii) Name of Key personnel of DOF.
(iii) Rationale for the additional loan is added in Section I (B) Rationale for Additional Financing;
(iv) Outputs are revised in Section III;
(v) Implementation period is updated in Section II;
(vi) Implementation plan is updated in Section II;
(vii) Implementation arrangement is modified for potential inclusion of the other project implementing agencies than DOTr and DPWH.
(viii) Indicative list of projects under the additional loan is added in Appendix 1;
(ix) Information on the additional loan is added in Section IV- Cost and Financing;
(x) Financial Management Assessment is updated in Section V;
(xi) Information on the additional loan is added in the Section VI. Procurement and Consulting services;
(xii) Procurement plan for the additional financing is added in Section IX and Appendix 2;
(xiii) Project design and monitoring framework is updated in Section IX; and
(xiv) Terms of references of consultants under additional financing are added in Appendix 3.

INDICATIVE LIST OF PROJECTSTO BE PREPARED UNDER THE ORIGINAL LOAN

Table A1.1: Indicative List of Projects – Department of Public Works and Highways (Roads and Bridges)

Project Name	Required Action	Estimated Investment Cost
North Eastern Luzon Expressway	Preparation of feasibility study for 10-km tunnel	₱18.42 billion (~ $372.17 million)
Nationwide Island Provinces Link Bridges for Sustained Economic Growth (Sorsogon–Samar)	Preparation of feasibility study for 4 bridges (1.2 km + 7.0 km + 6.0 km + 4.0 km) between Sorsogon and Samar	₱92.23 billion (~ $1.84 billion)
Laguna Lakeshore Road Network	Preparation of feasibility study	₱50 billion (~ $1 billion)
Panay–Guimaras–Negros Island Link (Long Span Bridge)	Preparation of feasibility study	₱ 97.5 billion (~. $1.95 billion)
Negros-Cebu Link Bridge	Preparation of feasibility study for a long span bridge between Negros and Cebu	₱27.589 billion (~ $557.40 million)
Cebu–Bohol Link Bridge	Preparation of feasibility study for a long span bridge between Cebu and Bohol	₱122.748 billion (~ $2.48 billion)
Samal Island–Davao City Connector Bridge	Preparation of feasibility study for a 1 km bridge over the Pakiputan Strait between Samal and Davao City and approximately 3.4 km approach roads	₱17.815 billion (~ $359.94 million)

km = kilometer, PFS= pre-feasibility study.

Table A1.2: Indicative List of Projects – Department of Public Works and Highways (Water)

Project Name	Required Action	Estimated Investment Cost
Apayao-Abulug River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area of 3,372 km^2 and a river length of 175 km	₱4.869 billion (~ $97.4 million)
Abra River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area of 5,125 km^2 and a river length of 181 km	₱4.861 billion (~ $97.4 million)
Jalaur River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area of 1,503 km^2 and a river length of 123 km	₱5.292 billion (~ $105.8 million)
Buayan-Malungon River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area 1,435 km^2 and a river length of 64 km	₱858 million (~ $ 17.2 million)
Agus River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area of 1,645 km^2 and a river length of 36 km.	₱1.109 Billion (~ $22.2 million)
Tagum-Libuganon River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area of 3,064 km^2 and a river length of 89 km	₱5.729 Billion (~ $114.6 million)

DED = detailed engineering design, km = kilometre, km^2 = square kilometer.

Table A1.3: Indicative List of Projects – Department of Transportation

Project Name	Required Action	Estimated Investment Cost
PNR South Commuter	Due diligence review of feasibility study, preparation of design-build bidding documents, for the reconstruction of a 72-km standard gauge, dual-track, electrified railway between Manila and Los Baños, Laguna	₱133.7 billion (~ $2.7 billion)
PNR South Long Haul	Due diligence review of feasibility study, preparation of design-build bidding documents for a 581-km standard gauge, single-track, non-electrified railway between (a) Los Baños and Legazpi, Albay, (b) Calamba and Batangas, and (c) Legazpi and Matnog, Sorsogon	₱151 billion (~ $3.0 billion)
Mindanao Railway: Tagum-Davao City-Digos Segment	Due diligence review of master plan, feasibility study, preparation of design-build bidding documents for a 102-km standard gauge, single-track, non-electrified railway between Tagum, Davao City, and Digos	₱36 billion (~ $640 million)
Central Mindanao Airport	Airport location study, due diligence review of existing feasibility study, and preparation of DED and bidding documents for the optimum development of existing airport facilities	For Turbo Prop Operation – ₱1.50 billion (~ $30 million) For Jet Operation – ₱2.5 billion (~ $50 million) (final scope and cost of project subject to result of feasibility study/ master plan Study)
National Greenways and Non-Motorized Transport Development Project	Due diligence review and preparation of feasibility study, DED and bidding documents to develop regulations for open space, pedestrian access, and non-motorized transport infrastructure in Metro Manila, Metro Cebu, Metro Davao, and selected secondary cities.	₱10 billion (~ $200 million)
National Intelligent Transport System	Preparation of Nationwide Multi-modal ITS master plan; preparation of feasibility study and design-build bidding documents for the NITC and its components.	₱19.3 billion (~ $386 million)

DED = detailed engineering design; ITS = Intelligent Transport System; km = kilometer; NITC = National Intelligence Transportation Center; PNR = Philippines National Railways; TEU = twenty-foot equivalent units.

INDICATVIE LIST OF PROJECTS UNDER ADDITIONAL LOAN

Table A1.4: Output 1: Road and Bridge Project Preparation

Project	Activities
Laguna Lakeshore Road Network Project	Detailed engineering design and tender support for Phase 1, feasibility study for Phase 2, and proof checking.
Bataan-Cavite Connection Bridge	Detailed engineering design, tender support, proof checking and quality assurance

Table A1.5: Output 2: Water Projects for Flood Control Preparation

Project	Activities
Principal River Basins flood management	Master planning, feasibility study, detailed engineering design and tender support

Table A1.6: Output 3: Transportation and Project Preparation

Project	Activities
Manila Rail Transit – Line 4	Detailed engineering design and tender support
Railway sector projects project preparation	Study, feasibility study and detailed engineering design for rail related projects - North Luzon Rail business case study - North Philippine Dry Ports: detailed engineering design and tender support - Spur line: detailed engineering design and tender support - LRT-2: feasibility study of additional rolling stocks - NSCR: detailed engineering design for transit-oriented development

Table A1.7: Output 4: Capacity Building for Project Management

Project	Activities
Capacity building for project management	Training and hand-on support for implementation management of DOTr and DPWH projects.

PROCUREMENT PLAN UNDER THE ORIGINAL LOAN

A. Basic Data

Project Name: **Infrastructure Preparation and Innovation Facility Additional Financing**		
Project Number: 50288-004	**Approval Number**: L3589	
Country: Philippines	**Executing Agency**: Department of Finance	
Procurement Classification: Category B **Procurement Risk:** Low	**Implementing Agencies:** Department of Public Works and Highways, and Department of Transportation	
Program Financing Amount: Original Financing - $100 million Original Government Financing - $64.06 million Total: $164.06 million	**Loan Closing Date**: Original Financing - 30 June 2022	
Date of First Procurement Plan 27 October 2017 (from the original financing)	**Date of this Procurement Plan**: 2 September 2019	
Procurement Plan Duration (in months): 18	**Advance Contracting:** Yes	**e-GP:** No

B. Methods, Review and Procurement Plan

1. Except as the Asian Development Bank (ADB) may otherwise agree, the following methods shall apply to procurement of goods and consultant services under the additional financing project.

Consulting Services	
Method	**Comments**
Open competitive bidding with international advertising using quality- and cost-based selection	Selection to be carried out by ADB on behalf of DPWH
Open competitive bidding with international advertising using quality-based selection	Selection to be carried out by ADB under advance action
Individual consultant selection for individual consultant	Selection to be carried out by ADB under advance action

ADB = Asian Development Bank, DPWH = Department of Public Works and Highways.

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

2. There are no such contracts envisaged under the project.

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

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

No.	General Description	Estimated Value [net of taxes]	Recruitment Method	Indicative Number of Contracts	Review (Prior/ Post)	Advertisement Date (quarter/ year)	Type of proposal	Comments
0505	Metro Manila Bridges - Detailed Engineering Design	44,100,000	QCBS 90:10	1	PriorPrior	Q44/ 2019	FTP	Assignment: International Quality-Cost Ratio: 90:10 Comments: The project requires the firm to be specialized in bridge design which is technically complex than the simple bridge design and construction supervision.
06	Samal Island-Davao Connector Project Detailed Engineering Design Consultant	9,346,000	QCBS 90:10	1	Prior	Q4/ 2019	FTP	Assignment: International Quality-Cost Ratio: 90:10 Comments: The project requires the firm to be specialized in bridge design which is technically complex than the simple bridge design and construction supervision; Selection to be carried out by ADB.

ADB = Asian Development Bank; FTP= full technical proposal; N/A = not applicable; QCBS= quality cost-based selection.

3. Goods and Works Contracts Estimated to Cost Less than $1 Million and Consulting Services Contracts Less than $100,000 (Smaller Value Contracts)

4. There are no such contracts envisaged under the project.

B. Indicative List of Packages Required Under the Project

5. The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Goods and Works							
Package Number	**General Description**	**Estimated Value (cumulative)**	**Estimated Number of Contracts**	**Procurement Method**	**Review** (Prior/Post)	**Bidding Procedure**	**Comments**
None							

Consulting Services							
Package Number	**General Description**	**Estimated Value**	**Number of Contracts**	**Recruitment Method**	**Review** (Prior/Post)	**Type of Proposal**	**Comments**
04	Specialist individual consultants	3,600,000.00	1	ICS	Prior		Assignment: International Expertise: Estimate 10 experts Comments: Selection to be carried out by ADB

ADB = Asian Development Bank, ICS = individual consultant selection.

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

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

Consulting Services							
Package Number	**General Description**	**Estimated Value**	**Awarded Contract Value**	**Recruitment Method**	**Advertisement Date** (quarter/year)	**Date of ADB Approval of Contract Award**[a]	**Comments**[b]
01	Road and bridge consultant firm to support DPWH with project preparation activities (Output 1)	23,000,000.00	23,272,993.79	QBS	Q2 / 2017	15-Dec-17	OVE Arup & Partners Hong Kong Ltd. (UKG) Contract signing date: 13 Feb 2018
02	Transportation consultant firm to support DOTr with project preparation activities (Output 3)	25,540,000.00	25,672,650.56	QBS	Q2 / 2017	06-Feb-18	OVE Arup & Partners Hong Kong Ltd. (UKG) Contract signing date: 3 Apr 2018

Consulting Services							
Package Number	**General Description**	**Estimated Value**	**Awarded Contract Value**	**Recruitment Method**	**Advertisement Date** (quarter/year)	**Date of ADB Approval of Contract Award**[a]	**Comments**[b]
03	Water consultant firm to support DPWH with project preparation activities (Output 2)	28,250,000.00	28,148,144.53	QBS	Q2 / 2017	19-Jan-18	JV Egis Eau, Egis International, Egis Structures & Environment (France), INCLAM, S.A. (Spain), Korea Engineering Consultants Corp. (Korea), in assoc with DCCD Engineering Corporation (Philippines) Contract signing date: 4 Apr 2018

DOTr = Department of Transportation, DPWH = Department of Public Works and Highways, Q = quarter, QBS = quality-based selection.
[a] Date of ADB Approval of Contract Award is the date of no-objection letter to the executing agency and/or implementing agency.
[b] Indicate the Consulting Firm's name and the contract signing date.

7. **Completed Contracts**. None at this stage.

Consulting Services							
General Description	**Estimated Value**	**Contract Value**	**Recruitment Method**	**Advertisement Date** (quarter/ year)	**Date of ADB Approval of Contract Award**[a]	**Date of Completion**[b]	**Comments**
None							

[a] Date of ADB approval of contract award is the date of No-Objection letter to the executing agency and/or implementing agency.
[b] Indicate the consulting firm's name and the contract signing date

PROCUREMENT PLAN UNDER ADDITIONAL LOAN

A. Basic Data

Project Name: **Infrastructure Preparation and Innovation Facility Additional Financing**		
Project Number: 50288-004	**Approval Number**: LXXXX	
Country: Philippines	**Executing Agency**: Department of Finance	
Procurement Classification: Category B **Procurement Risk:** Low	**Implementing Agencies:** Department of Public Works and Highways, and Department of Transportation	
Program Financing Amount: Additional Financing - $200 million Additional Government Financing - $41.68 million Total: $241.68 million	**Loan Closing Date**: Additional Financing – 30 June 2025	
Date of First Procurement Plan 2 September 2019	**Date of this Procurement Plan**: 2 September 2019	
Procurement Plan Duration (in months): 18	**Advance Contracting:** Yes	**e-GP:** No

B. Methods, Review and Procurement Plan

1. Except as the Asian Development Bank (ADB) may otherwise agree, the following methods shall apply to procurement of goods and consultant services under the additional financing project.

Consulting Services	
Method	**Comments**
Open competitive bidding with international advertising using quality- and cost-based selection	Selection to be carried out by ADB on behalf of DPWH
Open competitive bidding with international advertising using quality-based selection	Selection to be carried out by ADB under advance action
Individual consultant selection for individual consultant	Selection to be carried out by ADB under advance action

ADB = Asian Development Bank, DPWH = Department of Public Works and Highways.

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

2. There are no such contracts envisaged under the project.

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

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

No.	General Description	Estimated Value [net of taxes]	Recruitment Method	Indicative Number of Contracts	Review (Prior/ Post)	Advertisement Date (quarter/ year)	Type of proposal	Comments
1	Laguna Lakeshore Road Network - Phase 1 Detailed Engineering Design and Procurement, and Phase 2 Feasibility Study	40.5	QCBS 90:10	1	N/A	1Q20	FTP	Selection to be carried out by ADB
2	Laguna Lakeshore Road Network - Detailed Engineering Design Proof checking	1.5	QCBS 90:10	1	N/A	1Q20	FTP	Selection to be carried out by ADB
3	Bataan-Cavite Connection Bridge - Detailed Engineering Design and Procurement	48	QCBS 90:10	1	N/A	4Q19	FTP	Selection to be carried out by ADB
4	Bataan-Cavite Connection Bridge - Detailed Engineering Design Proof checking	2.5	QCBS 90:10	1	N/A	4Q19	FTP	Selection to be carried out by ADB
5	Principal River Basins - Master Plan, Feasibility Study, Detailed Engineering Design and Procurement	31.5	QCBS 90:10	2	N/A	1Q20	FTP	Selection to be carried out by ADB
6	Manila Rail Transit Line 4 - Detailed Feasibility Study, Detailed Engineering Design and Procurement	30	QCBS 90:10	1	N/A	4Q19	FTP	Selection to be carried out by ADB
7	Railway Sector Projects preparation and capacity development	24	QCBS 90:10	1	N/A	1Q20	FTP	Selection to be carried out by ADB
8	Technical panel for quality assurance for bridge projects	2	ICS	10	N/A	1Q20	-	Selection to be carried out by ADB

ADB = Asian Development Bank; FTP= full technical proposal; ICS= individual consultant selection; N/A = not applicable; QCBS= quality cost based selection.

6. Goods and Works Contracts Estimated to Cost Less than $1 Million and Consulting Services Contracts Less than $100,000 (Smaller Value Contracts)

4. There are no such contracts envisaged under the project.

B. Indicative List of Packages Required Under the Project

5. The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Goods and Works							
Package Number	**General Description**	**Estimated Value (cumulative)**	**Estimated Number of Contracts**	**Procurement Method**	**Review** (Prior/Post)	**Bidding Procedure**	**Comments**
None							

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

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

7. **Awarded and On-going Contracts.** These contracts were awarded during the original financing.

Consulting Services							
Package Number	**General Description**	**Estimated Value**	**Awarded Contract Value**	**Recruitment Method**	**Advertisement Date** (quarter/year)	**Date of ADB Approval of Contract Award**[a]	**Comments**[b]
None							

8. **Completed Contracts**. None at this stage.

Consulting Services							
General Description	**Estimated Value**	**Contract Value**	**Recruitment Method**	**Advertisement Date** (quarter/ year)	**Date of ADB Approval of Contract Award**[a]	**Date of Completion**[b]	**Comments**
None							

OUTLINE TERMS OF REFERENCES FOR CONSULTING SERVICES

A. Consulting Teams

1. Three consultant teams will be recruited under the project to support the project preparation activities, one for each of the three project outputs, namely project preparation support for: (i) road and bridge, (ii) water, and (iii) transportation.

2. The consultants will be recruited under advance action. The government has requested the Asian Development Bank (ADB) to undertake the recruitment of the consultants on their behalf and to use the ADB recruitment procedures and ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time). The consultant recruitment will be undertaken between May and November 2017, with the contract to be signed upon effectiveness of the Project. The contract will be signed between the government and the consultant.

3. The consultant teams will work directly with the PMUs for each of the outputs; two based in the Department of Public Works and Highways (DPWH, for road and bridges, and water) and one in the Department of Transportation (DOTr, transportation). the DOTr and DPWH will assign relevant counterpart staff on a permanent basis as part of the project management unit (PMU) for project preparation. The PMU office and assignment of staff is a critical aspect of the capacity development and technology transfer; under the premise of learning by doing as part of the project preparation teams.

4. Consultancy services will be provided by a firm or a consortium. The consultant teams should have a mix of international and national experts. The experts will cover all required skills for project preparation.

5. The consultant firms will undertake the following work:

(i) Screen project pipeline for each of the three project outputs. The screening will include an initial assessment of suitability to meet requirement, technical approach and option analysis, engineering innovation and buildability, cost estimates, benefit analysis (preliminary economic internal rate of return), preliminary safeguard requirement review, indicative project preparation timeframe, indicative project implementation timeframe, budget allocation, and suitable financing sources. The screening work will be used to prioritize project pipelines and will be submitted to the steering committee established for the project. The steering committee will review the work and decide on which projects will be taken forward for further preparation activities;

(ii) Feasibility studies. For prioritized projects the consultant teams will support the PMUs and line agencies in the project preparation activities. The feasibility work will differ for those projects that have identified official development assistance (ODA) finance and those to be, or already, prepared by the government. For ODA supported projects, the feasibility studies will be a due diligence review of project studies carried out by the potential financiers. For those projects to be financed by the government the consultant team will assist the government in the review or preparation of full feasibility studies. The feasibility studies will include detailed assessment (or due diligence review) of all technical, economic, financial, legal, safeguard, and social aspects of the project. The feasibility study will also prepare a timeframe for project implementation, financial arrangements, and operational requirements for both implementation and operational phases. The feasibility

studies will also ensure that all documents required for approval by government agencies, such as NEDA-Investment Coordination Committee, are prepared;

(iii) Detailed engineering design. Detailed engineering design (DED) will be undertaken once the prioritized projects have completed feasibility studies and received approval from government and/or ODA financiers. For ODA supported projects, the DED will be a due diligence review of designs carried out by the potential financiers. For those projects to be financed by the government, the consultant team will assist the government in the review or preparation of design work. DED work incorporates all information required to move projects from the preparation stage to the implementation. The work will include engineering design to a level that will allow specifications for civil works bidding, detailed assessment of all safeguard requirements, detailed project structure including financing arrangements, procurement plan and project implementation arrangements;

(iv) The consultants will provide the PMU with tender assistance, which shall include tender or bid management, market sounding or market studies, preparation or revision of bid documents, and bid evaluation;

(v) Financial arrangements. The consultant team will assist the PMU and line agencies with all necessary requirements for finance be they from ODA or government sources; and

(vi) Capacity Building for Safeguards Due Diligence. The consultants will provide on-the-job training and transfer of knowledge to staff of DOTr and DPWH to ensure sustainability in the preparation and implementation of environmental and social safeguard assessment and mitigation measures in accordance with applicable laws, regulations, and procedures.

Specialist Individual Consultants

6. Four main individual consultants will be recruited under the project. Three of these individual consultants will be based in the three PMU office and act as the “owners” engineer, providing support to the PMU and line agencies in undertaking the project, including assisting with the monitoring and reporting requirements. One individual consultant will be recruited to undertake the financial monitoring and reporting requirements for the project. Other consultants will be identified to support the project’s Output 4 objectives, which is the preparation of project management system.

OUTLINE TERMS OF REFERENCE FOR DETAILED DESIGN CONSULTANT

A. Introduction

1. The Government of Philippines has requested Asian Development Bank (ADB) for a loan to finance the Bataan – Cavite Interlink Bridge Project.

2. As part of the project, consultancy services are required for updating the feasibility studies conducted earlier, and preparing a detailed design package for the bridge including engineering design, study on environment and social safeguards, bid documents, and carry out due diligences necessary to support the government and ADB, who is the financier of the project, in project processing and procurement. The Department of Public Works and Highways (DPWH) will represent the government as the implementing agency of this project. The service will be carried out by a consulting firm, to be engaged by DPWH under the ongoing Infrastructure Preparation and Innovation Facility (IPIF), financed by ADB. The Consultants will be selected following ADB Procurement Policy 2017, Procurement Regulations for ADB Borrowers 2017, and *Guidelines for Use of Consultants for Asian Development Bank and its Borrowers*(as amended from time to time) which can be found at the following website:

https://www.adb.org/site/business-opportunities/operational-procurement/consulting/documents.

3. The location of the assignment shall be Manila, Philippines, and proximate areas in Philippines as needed. The assignment is expected to commence in January 2020 and be completed in approximately 24 months.

4. The assignment shall be input-output/performance-based with specific outputs and deliverables, as stipulated in the subsequent sections of the TOR. It is estimated that about 542 person-months of international and 636 person-months of national consultants' services will be required for the assignment.

B. Scope of Works

1. Review of the Feasibility Study

5. The Consultant is required to review the feasibility study prepared under the Infrastructure Preparatory Facility Innovation, to verify the findings on technical, economic, and social parameters of the Project that may have a direct bearing on the Project as it develops. The scope of this review includes but not limited to the following items:

(i) Preliminary Design
(ii) Scope of Construction Works
(iii) Contract Strategy
(iv) Design Criteria
(v) Project Program
(vi) Risk Register
(vii) Project Cost Estimate
(vii) Economic and Financial Analysis

2. Detailed Design

6. **Update of Final Preliminary Design.** As soon as sufficient survey data becomes available in the detailed design phase, the Consultant shall update the final preliminary design based on the results and findings of the feasibility study. The gaps and additional studies, identified in the preliminary design, is to be finalized/completed by the Consultant. The updated preliminary design should then be submitted to DPWH for review, and once approved by DPWH, the Consultant may proceed preparing the detailed engineering design based on the updated and approved preliminary design.

7. **Detailed Engineering Design.** Based on the agreed contract strategy, the Consultant is required to prepare detailed designs for all parts of the Project except those identified as “to be designed by contractors”. The Consultant shall use state-of-the-art techniques and standards to produce an efficient, robust, and buildable design that complies fully with the agreed design criteria developed in preliminary design. The design shall conform to international codes and standards, and, where relevant, reference shall be made to published design and detailing guides. However, in case of physical constraints on any of the bridges, the Consultant may suggest sub-standard design criteria for consideration by the executing agency. Proprietary analytical software should generally be independently verified and in all cases benchmarked against known or published solutions. Analytical techniques used in the detailed design should be described in the design report.

8. **Design Certificates.** The Consultant shall submit to DPWH design certificates signed by the Consultant’s team leader that itemize all drawings and, if appropriate, bar-bending schedules for all detailed design elements of the Project except where detailed designs are to be prepared by contractors. The certificates shall be in an agreed format and reflect the Consultant’s obligations under contract.

9. **Liaison with Independent Checking Engineer.** The Consultant is required to liaise and cooperate in a proactive manner with the independent checking engineers providing design information for checking in accordance with an agreed schedule. The Consultant will also provide independent checking engineer (ICE) with one license for each of the software used in the detailed design. The checking engineers will be required to provide check certificates as a key deliverable. The check certificates will state that the checking engineers are satisfied that the design complies with the design criteria. It is the design Consultant’s responsibility to resolve all technical issues raised by the checking engineers relating to the design in order to get to the stage where the checking engineers are in a position to sign the check certificates.

10. **Design Checks for Other Structures.** All detailed engineering designs not checked by the checking engineers shall be subject to a check by separate teams within the Consultant’s organization who have not been involved in preparing the detailed design. The Consultant shall submit a design check certificate for all such designs in an agreed format to DPWH.

11. **Special Investigations.** Special Investigations may be required to prove the validity of particular aspects or details of the detailed engineering design. If the Consultant or DPWH determines that special investigations are required during the detailed design stage, the design Consultant shall prepare all necessary technical specifications and other tender documentation; tender, supervise, and assess the results of these tests; and report on the same to DPWH.

12. **Confirm Scope of Each Construction Contract.** Taking into consideration the detailed design, the Consultant is required to confirm or modify, as required, the precise scope of each construction contract as proposed in the preliminary design.

13. **Design Specifications for Contractor Designed Elements.** The Consultant shall prepare illustrative designs and design and construction specifications, based on the final preliminary designs, for all contractor-designed elements, if any.

14. **Update Project Cost Estimate and Project Program.** The Consultant is required to update the Project's cost estimate, program, and expenditure profile on a month-by-month basis to reflect the detailed design. Estimated construction supervision costs should be identified along with anticipated operational costs of DPWH staff dedicated to the Project during the construction phase. The cost estimate should clearly identify the estimated value of each contract in both local and foreign currency, including supervision contracts, along with contingencies and allowances for currency fluctuations.

15. **O&M Requirements and Cost Estimate.** The Consultant shall develop an operation and maintenance (O&M) intervention schedule for the first 30 and 60 years after bridge opening based on the detailed design. The schedule should identify the likely activities and anticipated costs.

16. **Draft Contact Documents.** The Consultant shall prepare all additional bidding and contract documents for each construction contract including materials and workmanship specifications, bills of quantities, instructions to tenderers, and any further documentation required to complete the tender packages to the satisfaction of the DPWH and other interested Government departments.

17. **Detailed Design Report.** The Consultant shall prepare a detailed design report for the Project that comprehensively describes the design process, methods, assumptions, analytical techniques and software used to develop the detailed engineering design.

3. Procurement Assistance

18. **Contractor Prequalification.** Depending on the method of procurement to be followed for the project and as applicable, the Consultant shall assist DPWH with the prequalification procedure for each of the contracts. This shall include preparing prequalification and selection criteria, assisting with advertising, reviewing and assessing submissions, interviewing, and preparing a prequalification report that shall include a recommended list of prequalified contractors.

19. **Assistance during Tender Period.** DPWH will be responsible for administering tender procedures including issuing all tender-invitation documents and responding to queries raised by contractors. The Consultant shall provide whatever support to DPWH required throughout the tender period. The Consultant shall attend briefing sessions with contractors as required by DPWH throughout the tender period.

20. **Tender Evaluation.** The Consultant will be responsible for assessing all tenders and making recommendations as to which contractor should be selected for each contract. This shall include preparing, in advance, a tender evaluation strategy based on agreed technical and

commercial criteria. The Consultant shall review each tender for completeness and compliance with the tender documentation, thereafter, thoroughly reviewing each tender to ensure the technical and commercial feasibility of the proposals.

4. Safeguard Compliance

21. The Consultant shall update, environment impact assessment (EIA), as relevant, land acquisition plans (LAPs) and resettlement plans, and incorporate requirements to be fulfilled by contractors in bidding documents. The Consultant shall review all previous studies, in particular in line with ADB's Safeguard Policy Statement 2009 (SPS), and ADB's Handbook on involuntary Resettlement: A Guide to Good practice. The Consultant will update the draft grievance redress mechanism (GRM) developed during the project preparatory phase and provide training to the local commune/ward People's Committees on safeguards around compensation, replacements costs and livelihood restoration. At least one orientation session will be provided to each local commune's committee on the project and its resettlement applications. The outputs will be a combined report containing the minutes, attendance gender disaggregated lists and issues (disaggregated by gender) raised by the affected communes.

a. Environment Safeguard

22. The Consultant will review the EIA prepared during the project preparatory phase and will update it based on the outcomes of the detailed design. The EIA update will take into account the construction-related impacts such as those generated by the anticipated contractors' facilities including contractors' plants, borrow pits and quarries.

23. The Consultant will review, update and finalise the environmental management plan (EMP) prepared during the project preparatory phase. The EMP will identify measures to mitigate the anticipated adverse impacts, focusing primarily on avoidance rather than compensatory measures. The Consultant's attention is drawn on the need to incorporate into the detailed design the recommendations from the updated EMP. The EMP will include outline specifications to be incorporated in the civil works contract in relation to sources of construction materials and means of transport, measures for slope stabilisation and erosion control, limits on pesticides and chemicals, siting of concrete and asphalt plants, spill prevention and clean-up, dust and noise control, traffic management during construction, worksites and workers' safety, construction sites including borrow pits and quarry clean-up and rehabilitation.

24. The Consultant will assist DPWH in disclosing the EMP. The EMP will be attached to and be part of the civil works contracts. The contractors will be required to prepare their own environmental management plan based on the EMP. The mitigation measures and actions will be a full part of the construction contract and the associated costs will be included in the contractor's bid prices and subsequently in the civil works contract price.

b. Land Acquisition Plan and Resettlement Plan

25. The Consultant is responsible for finalizing a quality resettlement plan as required, ensuring that resettlement studies are conducted The Consultant will ensure that affected persons are consulted and resettlement information is disclosed to affected persons as required under *OM/F2* and ADB's *Access to Information* (2018), and relevant Co-financiers' disclosure policies.

26. The Consultant shall prepare detailed design for all resettlement sites (if any), which should include both commercial and housing plots, civic facilities and basic infrastructure as necessary, and affected common resource properties. The Consultant shall update Land Acquisition Plan for any land to be acquired for the project, including resettlement sites based on the Detailed Design, and assist DPWH in preparing all necessary documents for initiating land acquisition as stipulated in Land Acquisition Laws in the Philippines.

27. The Consultant will assist DPWH finalize and approve the resettlement plans that was prepared in the feasibility phase. The resettlement plans will be updated based on the detailed design information and data. The updated resettlement plans will be in the form of the final database of affected households and persons, a summary of the updated detailed measurement survey data, compensation charts and replacement cost tables. The resettlement plan costs will be re-estimated based on these updated data.

28. The Consultant will assist DPWH in disclosing the resettlement plan to affected communities and the general public in a form and language they can easily understand and in an easily accessible place. The resettlement plan disclosure will be through dissemination workshops targeting affected communities, public information booklets and summary The resettlement plans. The public information booklet and the summary resettlement plans will clearly state that copies of the full RPs, both in English and Tagalog, are available to the public and can be obtained from the district and provincial offices.

29. The Consultant will develop as part of each resettlement plan an income restoration program (IRP) for project area; these will aim to mitigate the adverse impacts of the resettlement plans. The IRPs to be developed will be preliminary documents to be complemented as required and finalized upon completion of the detailed measurement survey, replacement cost survey and consultation with different stakeholders which will be conducted by the implementing agencies upon completion of the detailed design.

30. The IRPs will be designed mainly to prevent poverty increase as a result of the resettlement plans. The IRP as outlined in the resettlement plans of the project preparatory phase will focus on the severely affected and vulnerable households. The Consultant will first update the affected persons and household data based on the updated resettlement plans. The Consultant will set up a database of those eligible under the IRP. Severely affected persons and households and vulnerable persons/households will be identified as eligible and given priority to participate in the IRP. Other affected persons/households may also join the IRP based on their needs, such as community members who may have their jobs impacted due to land acquisition.

31. The development activities to be envisaged in the IRP will focus on training on agricultural extension, vocational training, credit access and other measures meeting the needs of the project affected persons and supporting their livelihood restoration to the pre-project level, as a minimum. The IRP will be developed in consultation with (i) the affected persons to assess their needs and the specific measures and activities that would be required to restore and/or improve their livelihood and (ii) the provincial, district and ward authorities concerned. As much as feasible, the IRP's activities and compensation measures will be mainstreamed into on-going local development programs.

b. Gender Equality and Other Social Dimensions

32. The Consultant will carry out the following tasks:

(i) Review documentation for the Project area and making recommendations as appropriate to address the objectives of ADB's *Gender and Development Policy* (1998);
(ii) Include detailed gender equality- and social inclusion-sensitive activities in the engineering design and resettlement plans;
(iii) Conduct an analysis of men and women's access to resources and services and an analysis of men and women's roles in decision making, division of labor, development priorities, and other variables that will impact on their participation in the project and guide the project design to avoid increasing the burden on women;
(iv) Assess the absorptive capacity, considering how women and men will participate in the Project–their motivation, knowledge, skills and organizational resources–and how the Project will fit into their society;
(v) Design mechanisms that will ensure women's access to project benefits;
(vi) Assess and propose opportunities for women affected by the project for income generation through agriculture, livestock, forestry, and other activities;
(vii) Develop gender-related training program according to the needs of women;
(viii) Assess the capacity of the proposed institutions to deliver services to women;
(ix) Develop a management program for sexually transmitted infections to address HIV/AIDS and human trafficking issues during the construction period; and
(x) Prepare a comprehensive and integrated road safety awareness campaign to be implemented during the construction period.

C. Team Composition

33. The provision of consulting services for completing the project detailed design covering both engineering will require the mobilization of a team of international and national experts. The tentative list of experts and required qualifications of the key experts are provided in Tables A3.1 and A3.2, respectively. It is anticipated that about 542 person-months of international experts and 636 person-months of national experts will be required.

Table A3.1: Tentative List of Experts (International)

Position	Quantity	Person-Months	Total Person-Months
Team Leader/ Sr. Bridge Engineer	1	20	20
Deputy Team Leader	1	20	20
Senior Project Coordinator	1	20	20
Senior Bridge Engineer	3	16	48
Senior Marine Foundation Engineer	2	12	24
Senior Geologist	1	8	8
Senior Geotechnical Engineer	2	10	20
Senior Seismic Engineer	1	4	4
Maritime Engineer	1	8	8
Senior Hydrologist & Drainage Engineer	2	12	24
Senior Mechanical Engineer	1	12	12
Senior Electrical Engineer	1	12	12
Contracts & Procurement Expert	2	12	24
Senior Highway Engineer	2	16	32
Pavement Engineer	2	8	16
Senior Transport Planning/ Traffic Engineer	1	14	14
Senior Quantity Surveyor/ Cost Engineer	2	12	24
GIS/ Survey Specialist	2	12	24
CAD/ 3-D Modeler	2	12	24
Senior Transport Economist	1	8	8
Financial Analyst	1	12	12
QA and Miscellaneous	2	18	36
Utilities Interface Engineer	2	12	24
Senior Environment Specialist	1	16	16
Senior Social/ Resettlement Specialist	1	14	14
Senior Gender Specialist	1	12	12
Senior Climate Change Specialist	1	12	12
Safeguard Coordinator	1	18	18
Total	**42**		**530**

Table A3.2: Tentative List of Experts (National)

Position	Quantity	Person-Month	Total Person-Month
Bridge Engineer	4	20	80
Highway/ Road Engineer	2	20	40
Geotechnical Engineer	2	16	32
Hydrologist & Drainage Engineer	2	12	24
Traffic Engineer	2	16	32
Electrical Engineer	1	16	16
Mechanical Engineer	1	16	16
QS-BOQ	2	16	32
Project Coordinator	1	20	20
Interface Engineer	2	20	40
Senior Surveyor	3	20	60
Senior CAD Engineer	3	20	60
Cad Operators	6	20	120
Social/ Resettlement Expert	2	16	32
Environment Expert	2	16	32
Total	**35**		**636**

Table A3.3: Qualifications of Key Personnel

Position	Required Qualifications and Experience
Team Leader/ Sr. Bridge Engineer	• Bachelor's degree in civil engineering, post-graduate degree preferred • 25 years of professional experiences • 15 years in planning, project preparation and design of highway bridge structures, at least 5 years as project team leader
Deputy Team Leader	• Bachelor's degree in engineering, post-graduate degree preferred • 20 years of professional experiences • 15 years in planning, project preparation and management, at least 5 years as project team leader/ deputy team leader
Senior Bridge Engineer	• Bachelor's degree in civil engineering, post-graduate degree preferred • 20 years of professional experiences • 15 years of experience in bridge and structure design
Senior Marine Foundation Engineer	• Bachelor's degree in civil engineering, post-graduate degree preferred • 20 years of professional experiences • 10 years of experience in design of offshore foundations
Senior Geotechnical Engineer	• Bachelor's degree in civil engineering, post-graduate degree preferred • 15 years of professional experiences • 10 years of experience in foundation/ geotechnical engineering design
Senior Seismic Engineer	• Bachelor's degree in geology, post-graduate degree preferred • 20 years of professional experiences • 10 years of experience in seismic analysis and design
Maritime Engineer	• Bachelor's degree in maritime engineering, post-graduate degree preferred • 20 years of professional experiences • 10 years of experience in maritime transport design/ management
Senior Hydrologist & Drainage Engineer	• Bachelor's degree in civil engineering, post-graduate degree preferred • 15 years of professional experiences • 10 years of experience in hydrology/ drainage design
Contracts & Procurement Expert	• Bachelor's degree in engineering/ construction science, post-graduate degree preferred • 15 years of professional experiences • 10 years in preparation/management of construction contracts and procurements for international bidding
Senior Highway/ Road Engineer	• Bachelor's degree in civil engineering, post-graduate degree preferred • 20 years of professional experiences • 12 years in planning, project preparation and design of highways/ roads
Senior Pavement Engineer	• Bachelor's degree in civil engineering, post-graduate degree preferred • 15 years of professional experiences • 10 years of experience in pavement design
Transport Planning/ Traffic Engineer	• Bachelor's degree in transport engineering or relevant field, post-graduate degree preferred • 15 years of professional experiences • 10 years in transport planning/ road network design
Senior Pavement Engineer	• Bachelor's degree in civil engineering, post-graduate degree preferred • 15 years of professional experiences • 10 years of experience in pavement design
Contracts & Procurement Expert	• Bachelor's degree in engineering/ construction science, post-graduate degree preferred • 15 years of professional experiences • 10 years in preparation/management of construction contracts and procurements for international bidding

Position	Required Qualifications and Experience
Senior Environment Specialist	• Bachelor's degree in finance, business or economics, post-graduate degree preferred • 15 years of professional experiences • 10 years in environment impact assessment and design of environment management/ monitoring plans for road/ infrastructure projects

D. Technical Deliverables

34. Table A3.4 is a summary of the Consultant's output / deliverables:

Table A3.4: Reporting Requirements

Reports/Documents	Deadline for Submission
Inception Report. The report shall cover: (i) overall assessment of the project; (ii) detailed work program covering all TOR tasks; and (iii) issues that may require DPWH's actions.	2 months after issuance of the notice to proceed (NTP)
Reports on technical field work: Topographic survey, soil investigations, traffic counts, hydrology and hydraulic.	10 months after NTP issuance.
Report on Review of Feasibility. Engineering drawings, draft technical specifications and draft general conditions of contract.	12 months after NTP issuance
Updated Preliminary Design (based on Review of Feasibility).Engineering drawings, draft technical specifications and draft general conditions of contract.	14 months after NTP issuance
Draft detailed design documents: Design report, complete set of drawings, bill of quantities, contract packaging, cost estimate	18 months after NTP issuance
Draft tender documents. Completed in accordance with ADB Standard Bidding documents and Philippines applicable standards	18 months after NTP issuance
Final design report and documents. Including detailed engineering drawings, technical specifications, bill of quantities, contract packaging and cost estimate.	3 months of receipt of DPWH and ADB's comments on draft documents.
Final Tender Documents. 20 sets for each contract package.	3 months of receipt of DPWH and ADB's comments on the draft documents.
Draft updated environment impact assessment (EIA) and updated environmental management plan (EMP)	15 months after NTP issuance
Final updated EIA and EMP	3 months of receipt of DPWH and ADB's comments on the draft documents.
Draft updated resettlement plans along with the income restoration program and draft public information booklets.	15 months after NTP issuance
Final RPs along with income restoration program and draft information booklet and arrangements for resettlement plan disclosure.	1.5 months of receipt of DPWH and ADB's comments on the draft documents.
Draft report on gender equality and social dimension	12 months after NTP issuance
Final report on gender equality and social dimension	3 months of receipt of DPWH and ADB's comments on the draft documents
Final design report summarising the services outputs	24 months after NTP issuance
Final workshop	24months after NTP issuance

ADB = Asian Development Bank, DPWH = Department of Public Works and Highways, EIA = environment impact assessment, EMP = environmental management plan, NTP = notice to proceed, TOR = terms of reference.

Terms of Reference for Independent Checking Engineer (Bataan-Cavite Interlink Bridge Project)

I. Background

1. The Asian Development Bank (ADB), on 27 October 2017, approved a technical assistance (TA) loan of $100 million from its Ordinary Capital Resources following a request by the Government of the Republic of Philippines, to help finance the Infrastructure Preparation and Innovation Facility Project (IPIF). The Department of Finance (DOF) is the Executing Agency, and the Department of Public Works and Highways (DPWH), and the Department of Transport (DOTr) are the Implementing Agencies for the project.

2. The IPIF will have four outputs aimed at development of country's transport infrastructure, flood protection, and improvement of the project development management systems of DPWH and DOTr for project preparation and sustainable management systems. The Department Public Works and Highways (DPWH) is the Implementing Agency for Output-1 (roads and bridges) for the project, which includes the Bataan – Cavite Interlink Bridge Project.

3. The construction of the Bataan – Cavite Interlink Bridges Project aims at attaining the following objectives:

   (i) Alternative Loop road to ease traffic congestion in Metro Manila and, South Luzon and North Luzon gateway;
   (ii) Development of Seaports of Cavite and Bataan as premier international shipping gateway to the country;
   (iii) Provide opportunities for expansion outside Metro Manila for economic growth;
   (iv) Development of the famous Corregidor Island as a tourist spot; and
   (v) Save time and vehicles operating costs, improve profitability and marketability of goods, and provide access to social services within the project proximity.

4. The Bataan – Cavite Interlink Bridges Project comprises construction of two new fixed crossings over Manila Bay, Philippines, which will consist of two long-span bridges that will connect Mariveles, Bataan to Corregidor to Naic Cavite; and approach roads and bridge end facilities, including toll plaza, service areas and offices. Target lengths of the bridges are: Bridge 1 – 20 kilometers, and Bridge 2 – 8 kilometers. The proposed bridges will pass through the two channels, namely South and North Channel, of the Manila Bay. The main bridges are to carry two highways and other facilities including power transmission lines and communication infrastructure. The two bridges are under the administrative jurisdiction of two provinces, namely Bataan and Cavite.

5. Feasibility studies for the Bataan – Cavite Interlink Bridge Project is currently being undertaken by the consultants, Ove Arup and Partners Hong Kong Ltd., and is expected to be complete by end of 2019. The Bataan-Cavite Interlink Bridge Project will comprise two phases – Phase 1 of the Project comprising Detailed Engineering Design (DED) leading through procurement action to award of construction contracts, and Phase 2 comprising the physical construction of the Project.

6. The Implementing Agency, DPWH, intends to engage an independent checking engineer (ICE) to undertake an independent proof check of the detailed engineering design of the Bataan-

Cavite Interlink Bridges and associated infrastructure. The document sets out the Terms of Reference for the Independent Checking Engineer.

II. Objectives for the Checking Engineer

7. The primary objective of engaging the independent checking engineer is to ensure that the DED of the main bridges and associated infrastructure satisfies the objectives set down in the Terms of Reference for the project and that of the DED consultants, and to enable award of the construction contracts for the project, fully meeting the requirements of the DOF and DPWH, and the ADB.

8. The design check is required to be carried out by an organization fully independent of the Design Consultant and agreed by the Employer (DPWH).

9. The Checking Engineer shall be responsible for checking the deliverables of the Design Consultant with due professional skill and care in accordance with the agreed design criteria. In course of checking, the Checking Engineer shall draw the attention of the Design Consultant and DPWH to any aspect of the agreed Design Criteria where are considered essential, DPWH's agreement to variations in the Design Criteria shall be confirmed in writing.

10. The checking engineer shall carry out a comprehensive examination of all aspects of the permanent works design produced by the design consultants, as defined below, including any proposed departures from the adopted design standards and/or specifications that affect the structural integrity.

III. Scope of the Services

A. Main Bridges

11. The checking engineer's scope shall include an independent check of the permanent works design both in service and during erection. The checking engineer shall consider the erection methodology and construction sequence of the main bridges (i) to ensure that the structural design are satisfactory in the temporary condition and do not adversely affect the capacity or behavior of the permanent structures, and (ii) to ensure the constructability of the design is fully addressed with regard to safety in construction.

12. The checking engineer shall perform a fully independent structural static and dynamic analysis to determine the load effects in the structures of the main bridges and to check compliance of the design with the Contract Objective and the Design Criteria. In preparing the computer models for structural analysis, the checking engineer shall independently derive the geometry, material and section properties from the information given on the Detailed Design drawings and shall determine the appropriate loading cases and combinations from the design criteria.

13. The checking engineer's analytical work shall be independent of that of the design consultant and carried out without exchange of calculation sheets or similar information between the design consultant and the checking engineer.

14. Specifically, the checking engineer will review and comment on the following:
    (i) Design drawings;
    (ii) Design statements or reports;

(iii) Design Criteria documents including design assumptions;
(iv) Site survey and geotechnical investigation reports;
(v) Materials and workmanship specifications;
(vi) Wind tunnel tests proposals and interpretative reports (if any);
(vii) Scope and requirements of All Additional Studies and special investigation reports;
(viii) Construction method and erection sequence assumptions;
(ix) Design criteria for major elements of temporary works including design loads for critical load cases;
(x) Other reports relating to the design and construction; and
(xi) Design program and design management information.

15. If factored in the feasibility study and prompted by the Detailed Design criteria, the checking engineer will also perform an independent review of the flood hydrology, scour assessment, wave climate, scour depth, geometry, and morphological study.

16. The scope of independent checking will not include the following:
(i) Dimensional and level checks of the drawings and setting out information;
(ii) Electrical and mechanical design and drawings;
(iii) Bridge deck furniture such as parapet rails, lighting columns, signs, etc.;
(iv) Drainage design;
(v) Highway alignment design of the Main Bridges.

B. Confidentiality

17. All reports, documents, correspondence, drawings, notes, specifications, statistics, work product in any form and, technical data compiled or prepared by the checking engineer and communicated to DPWH and ADB in performing the services (in electronic form or otherwise and including computer disks containing data) shall be the sole and exclusive property of the DPWH, and may made available to the general public only at its sole discretion.

18. Senior members of the checking engineer's team shall be required to sign a Confidentiality Agreement to the above effect.

C. Time Schedule

19. DPWH shall provide an up-to-date design program at the commencement of the checking engineer's work together with dates of proposed delivery of documents and drawings. The checking shall be carried out in a staged manner and coordinated with the project program. Both activities of design and checking shall proceed in parallel as far as practicable. DPWH will provide copies of the Terms of Reference for the detailed design at the commencement of the Checking Engineer's work together with copies of the Interim and Final Scheme Design Reports and Design Criteria.

20. The main detailed design package for independent checking will be the tender issue drawings. Prior to the issuance of tender drawings, the design consultant will provide advance copies of the detailed design drawings to assist the independent checking process.

21. Meetings will be arranged during the course of the detailed design between the Design Consultant and the Checking Engineer to discuss aspects of the design and provide briefings on the design progress. The checking engineer may be required to visit the Design Consultant's project office in Manila or design office for the main bridges in design consultant's headquarters

for these meetings. Otherwise, it is assumed that the majority of the independent check will be carried out in the checking engineer's home office.

22. The checking engineer shall be proactive in resolving any issues raised in the independent checking process and not cause any unnecessary delay to the design process.

D. Deliverables

23. The checking engineer shall provide a progress report to DPWH every two months summarizing progress made and any outstanding issues to be resolved.

24. The checking engineer shall provide review comments on the tender issue design packages within 30 days of receipt.

25. Following resolution of any outstanding issues, the design consultant shall prepare draft issued for construction drawings for final review and acceptance by the checking engineer. On acceptance of the draft issued for construction drawings, the checking engineer shall provide a proof check certificate in a format to the satisfaction of DPWH. An indicative checking certificate is provided in Appendix-A. This will form the basis for the proof check certificate.

E. Personnel

26. The checking engineer shall be required to provide senior managerial and technical experts and support staff to efficiently manage and execute the work to the program and to meet the objectives and requirements of these TOR. Personnel identified in the checking engineer's proposal will be expected to be made available for the duration of the works.

27. If, at any time, during progress of the project, the checking engineer wishes to propose a substitute for the nominated person, then the proposed substitute must have at least the same or better qualifications and experience as the nominated person proposed to be replaced. The substitute shall be accepted subject to DPWH's approval. Replacement of personnel shall be accepted under exceptional circumstances only.

28. The consultant firm (intending for engagement as checking engineer) will be required to submit in its proposal CVs for the positions stated in the Table: "Category of Experts for the checking engineer" given below. For the purpose of ranking technical proposals, evaluation of the Consultant's proposed personnel will be based on the CVs of the positions included in Evaluation Sheets to be used for the evaluation of Technical proposals (Appendix to Section…, Instructions to Consultants, (ii) Data Sheet).

29. Qualification and experience requirements for selected personnel described below are to broadly define the preferred qualifications and experience to be possessed by a selection of nominated personnel of the checking engineer. This appendix is to supplement the information already provided elsewhere in the RFP that directly or indirectly defines the level and range of expertise, qualifications and experience to be possessed by individual experts of the checking engineer, and is, not an exhaustive list of requirements.

Table A3.5: List of Experts for the Checking Engineer

LIST OFEXPERTSFORTHECHECKINGENGINEER			
Personnel	**Number**	**Person-Months**	**Total Person-Months**
TeamLeader/ Senior Bridge Engineer	1	16	16
SeniorBridge/StructureDesigner	2	12	24
SeniorGeotechnical/ Foundation Engineer	3	16	48
Senior Hydrotechnical Engineer	1	8	8
SeniorMorphologist	1	8	8

30. **Team Leader (International)**
   (i) Senior engineer with sufficient experience as a team leader of large multi-disciplinary consulting team engaged in the independent proof check or detailed design of a bridge of similar or greater magnitude and/or nature to this project;
   (ii) Familiar with FIDIC Conditions of Contract and possessing experience in the delivery of independent checking projects using similar contract documentation; and
   (iii) Minimum of Bachelor's degree in civil engineering with at least 20 years of work experience in similar field to this project;

31. **Senior Bridge Designers (International)**
   (i) Senior engineers with sufficient experience in the independent proof check or detailed design of a bridge of similar magnitude and/or nature to this project;
   (ii) Experience in the construction supervision or delivery for construction of a bridge of similar magnitude and/or nature to this project;
   (iii) Experience in bay/sea hydraulic techniques of bridge design; and
   (iv) Minimum of a Bachelor's degree in civil engineering with at least 20 years of work experience in similar field to this project;

32. **Senior Geotechnical/ Foundation Engineer (International)**
   (i) Senior engineer with sufficient experience in the independent proof check or detailed design of a bridge of similar magnitude and/or nature to this project;
   (ii) Experience in the construction supervision or delivery for construction of pile foundations of a bridge of similar magnitude and/or nature to this project; and
   (iii) Minimum of a Bachelor's degree in geotechnical engineering with at least 20 years of work experience in a similar field to this project.

33. **Senior Hydrotechnical Engineer (International)**
   (i) Senior hydrotechnical engineer with sufficient experience in the independent proof check or detailed design of major bay crossings training structures in the region;
   (ii) Experience of the application of physical and numerical models for hydraulic design of marine bank protection works and for bridge scour assessment;
   (iii) Experienceinthemaintenanceofbankprotectionworksonbay crossingssimilartothe Manila Bayandonincorporatingmaintenanceconsiderationsintothedesign;
   (iv) ExperienceinconstructionplanningandtenderingofBay/seashoreprotectionworks; and
   (v) Minimum of Masters degree in civil engineering with a tleast 20 years of work experience in a similar field to this project;

34. **Senior Morphologist (International)**

(i) Senior bay/ocean morphologist with sufficient experience in assessing the role of channel morphology on the performance of major marine/Bay/sea shore protection works on water bodies similar in character to Manila Bay;

(ii) Experience in assessing historical patterns of channel instability and predicting rates of bay shore/bank erosion/scouring on water bodies similar in character to Manila Bay;

(iii) Experience in assessing the relation between plan form geometry and scour on fixed bay crossings;

(iv) Minimum of Masters degree in earth science or civil engineering, with at least 20 years of experience in a similar field as this project.

F. Payment

35. Paymenttothecheckingengineershallbemadeonthebasisofdeliverables,asfollows:

Table A3.6: Progress Payment

Deliverables	Eligible Payment
Provision of Progress Report	10% of Contract Price
Provision of Report on Tender Issue	70% o fContract Price
Provision of Proof Check Certificate	20% of Contrac tPrice
Reimbursables (attendance in meetings)	At cost

36. Final details shall be reviewed in the Financial Negotiations.

OUTLINE TERMS OF REFERENCE FOR DETAILED DESIGN CONSULTANT

A. Introduction

35. The Government of Philippines has requested Asian Development Bank (ADB) for a loan to finance the Laguna Lakeshore Road Network Project.

2. As part of the project, consultancy services are required for updating the feasibility studies conducted earlier, and preparing a detailed design package for the project including engineering design, study on environment and social safeguards, bid documents, and carry out due diligences necessary to support the government and the Asian Development Bank (ADB), who is the financier of the project, in project processing and procurement. The Department of Public Works and Highways (DPWH) will represent the government as the implementing agency of this project. The service will be carried out by a consulting firm, to be engaged by DPWH under the ongoing Infrastructure Preparation and Innovation Facility (IPIF), financed by ADB. The Consultants will be selected following ADB Procurement Policy 2017, Procurement Regulations for ADB Borrowers 2017, and *Guidelines for Use of Consultants for Asian Development Bank and its Borrowers*(as amended from time to time) which can be found at the following website:

https://www.adb.org/site/business-opportunities/operational-procurement/consulting/documents.

3. The location of the assignment shall be Manila, Philippines, and proximate areas in Philippines as needed. The assignment is expected to commence in January 2020 and be completed in approximately 22 months' time.

4. The assignment shall be input-output/performance-based with specific outputs and deliverables, as stipulated in the subsequent sections of the TOR. It is estimated that about 570 person-months of international and 720 person-months of national consultants' services will be required for the assignment.

B. Scope of Works

1. Preliminary Design: Phase 1 and 2

5. **Review and update of Feasibility Study-Phase 1.**A feasibility study is being carried out for the west shore (Phase 1) of the Laguna Lake. The Consultant is required to review and update this feasibility study, planned to be completed in 2019, to verify the findings on technical, economic, and social parameters of the Project that may have a direct bearing on the Project as it develops.

6. **Feasibility Study- Phase 2.** The consultant is required to complete feasibility study for the east shore (Phase-2) of the Laguna Lake as a part of the project.

7. **Confirm Scope of Construction Works.** The consultant is required to review the scope of works for the feasibility study and confirm the scope of the construction works. This includes determining the full requirements for all aspects of the Project.

8. **Review and Confirm Contract Strategy.** The consultant is required to propose different options of contract packaging including the integral and ancillary components, define the precise split of responsibility between the individual construction contracts, and define overall necessary interfaces and coordination during project implementation.

9. **Review and Develop Design Criteria.** The consultant shall review and update/prepare comprehensive design criteria in accordance with the design standards internationally accepted/applied. It should clearly state all assumptions regarding loads imposed on the structures and the expected movements so that that the effects of these movements can be accounted for in the design of the utilities. In case of physical constraints on any of the structures, such as insufficient right of way or space limitation, the Consultant may suggest sub-standard design criteria for consideration by the implementing agency.

10**.** **Develop Preliminary Design.** To the extent technically and economically justifiable and practicable, the Consultant is required to develop outline designs for different options for the bridges, viaduct, approach roads, etc., enabling the implementing agency to objectively compare the different options. Each option shall be developed in sufficient detail to demonstrate that the Project objectives and design criteria have been complied with and to enable preliminary construction costs to be estimated and a construction program to be prepared.

11. **Project Program.** The Consultant is required to prepare a program for all aspects of the Project including activities within the Consultant's scope and those undertaken by others, including DPWH, ADB, and independent checking engineers, hereafter referred to as the Project's program. The program should reflect the agreed procurement strategy and preliminary designs for all elements of the Project. It should be achievable and be accompanied by a commentary that identifies options or alternative scenarios where appropriate.

12. **Risk Register.** The Consultant is required to prepare and maintain for the duration of the Project a detailed risk register. This register will identify technical, contractual, social, environmental, program, financing, and other risks. It will identify the probability of occurrence, mitigating measures required, residual risks, and consequences should the risk come to pass. It should identify those responsible for addressing the risks and at what stage the risks are to be addressed.

13. **Project Cost Estimate.** The Consultant shall prepare a preliminary cost estimate broken down into the different contracts (as required) showing the projected expenditure profile throughout the Project on a month-by-month basis for each construction contract and any other works associated with the Project.

14. **Economic and Financial Evaluation.** The Consultant shall develop economic and financial analysis for the project in accordance with ADB *Guidelines for the Economic Analysis of Projects 2017,* and ADB Guidelines on *Financial Management and Analysis of Projects 2005*. They shall include evaluations that are directly comparable to those produced previously for similar bridges projects but should be expanded and refined in whatever way that the Consultant sees as appropriate. The economic evaluation will output the predicted economic internal rate of return, benefit-to-cost ratio, and net present value for the Project. Sensitivity studies should be undertaken in the similar way of those done at the feasibility stage. The financial evaluation aims to measure and evaluate financial aspects of the Project and will produce financial net present value (FNPV) and financial internal rate of return (FIRR).

15. **Preliminary Design Reports.** At a point in the program to be approved by DPWH, the Consultant shall submit an interim Preliminary design report. This shall include details and general arrangement drawings of the options considered and a preliminary assessment of the preferred option. The Consultant shall make a presentation of the interim preliminary design to

DPWH, other relevant authorities, and ADB. Any comments received from relevant parties shall be considered and incorporated into the development of the final preliminary design. The Consultant shall prepare and submit a final preliminary design report that will include general arrangement drawings and presentation images for planning and promotional purposes. The report will include comprehensive details of the studies in sufficient detail to allow close scrutiny by others. The report must set out a full justification for the recommendations made.

2. Detailed Design for Phase 1

16. **Update of Final Preliminary Design.** As soon as possible in the detailed design phase, the Consultant shall update the final preliminary design only for Phase-1. The gaps and additional studies, identified in the preliminary design, is to be finalized/completed by the Consultant. The updated preliminary design should then be submitted to DPWH for review, and once approved by DPWH, the Consultant may proceed with preparing the detailed engineering design based on the updated and approved preliminary design.

17. **Detailed Engineering Design.** Based on the agreed contract strategy, the Consultant is required to prepare detailed designs for all parts of the Phase-1. The Consultant shall use state-of-the-art techniques and standards to produce an efficient, robust, and buildable design that complies fully with the agreed design criteria developed in preliminary design. The design shall conform to international codes and standards, and, where relevant, reference shall be made to published design and detailing guides. However, in case of physical constraints on any of the project components, the Consultant may suggest sub-standard design criteria for consideration by the implementing agency. Proprietary analytical software should generally be independently verified and in all cases benchmarked against known or published solutions. Analytical techniques used in the detailed design should be described in the detailed design report.

18. **Design Certificates.** The Consultant shall submit to DPWH design certificates signed by the Consultant's team leader that itemize all drawings and, if appropriate, bar-bending schedules for all detailed design elements of the Project except where detailed designs are to be prepared by contractors. The certificates shall be in an agreed format and reflect the Consultant's obligations under contract.

19. **Liaison with Independent Checking Engineer.** The Consultant is required to liaise and cooperate in a proactive manner with the independent checking engineers providing design information for checking in accordance with an agreed schedule. The Consultant will also provide ICE with one license for each of the software used in the detailed design. The checking engineers will be required to provide check certificates as a key deliverable. The check certificates will state that the checking engineers are satisfied that the design complies with the design criteria. It is the design Consultant's responsibility to resolve all technical issues raised by the checking engineers relating to the design in order to get to the stage where the checking engineers are in a position to sign the check certificates.

20. **Design Checks for Other Structures.** All detailed engineering designs not checked by the checking engineers shall be subject to a check by separate teams within the Consultant's organization who have not been involved in preparing the detailed design. The Consultant shall submit a design check certificate for all such designs in an agreed format to DPWH.

21. **Special Investigations.** Special Investigations may be required to prove the validity of particular aspects or details of the detailed engineering design. If the Consultant or DPWH determines that special investigations are required during the detailed design stage, the design Consultant shall prepare all necessary technical specifications and other tender documentation; tender, supervise, and assess the results of these tests; and report on the same to DPWH.

22. **Confirm Scope of Each Construction Contract.** Taking into consideration the detailed design, the Consultant is required to confirm or modify, as required, the precise scope of each construction contract as proposed in the preliminary design.

23. **Design Specifications for Contractor Designed Elements.** The Consultant shall prepare illustrative designs and design and construction specifications, based on the final preliminary designs, for all contractor-designed elements, if any.

24. **Update Project Cost Estimate and Project Program.** The Consultant is required to update the Project's cost estimate, program, and expenditure profile on a month-by-month basis to reflect the detailed design. Estimated construction supervision costs should be identified along with anticipated operational costs of DPWH staff dedicated to the Project during the construction phase. The cost estimate should clearly identify the estimated value of each contract in both local and foreign currency, including supervision contracts, along with contingencies and allowances for currency fluctuations.

25. **O&M Requirements and Cost Estimate.** The Consultant shall develop an operation and maintenance (O&M) intervention schedule for the first 30 and 60 years after bridge/viaduct opening based on the detailed design. The schedule should identify the likely activities and anticipated costs.

26. **Draft Contact Documents.** The Consultant shall prepare all additional bidding and contract documents for each construction contract including materials and workmanship specifications, bills of quantities, instructions to tenderers, and any further documentation required to complete the tender packages to the satisfaction of the DPWH and other interested Government departments.

27. **Detailed Design Report.** The Consultant shall prepare a detailed design report for the Project that comprehensively describes the design process, methods, assumptions, analytical techniques and software used to develop the detailed engineering design.

3. Procurement Assistance: Phase 1

28. **Contractor Prequalification.** Depending on the method of procurement to be followed for the project and as applicable, the Consultant shall assist DPWH with the prequalification procedure for each of the contracts under Phase 1. This shall include preparing prequalification and selection criteria, assisting with advertising, reviewing and assessing submissions, interviewing, and preparing a prequalification report that shall include a recommended list of prequalified contractors.

29**.** **Assistance during Tender Period.** DPWH will be responsible for administering tender procedures including issuing all tender-invitation documents and responding to queries raised by contractors. The Consultant shall provide whatever support to DPWH required throughout the

tender period. The Consultant shall attend briefing sessions with contractors as required by DPWH throughout the tender period.

30. **Tender Evaluation.** The Consultant will be responsible for assessing all tenders and making recommendations as to which contractor should be selected for each contract. This shall include preparing, in advance, a tender evaluation strategy based on agreed technical and commercial criteria. The Consultant shall review each tender for completeness and compliance with the tender documentation, thereafter, thoroughly reviewing each tender to ensure the technical and commercial feasibility of the proposals.

4. Safeguard Compliance: Phase 1 and 2

31. The Consultant will review and update Safeguard Compliance report for Phase 1. For Phase 2, the Consultant will develop such report from beginning. The Consultant shall update/develop Environment Impact Assessment (EIA), Land Acquisition and Resettlement Plan (LARP), and incorporate requirements to be fulfilled by contractors in bidding documents. The Consultant shall review all previous studies, in particular in line with ADB's Safeguard Policy Statement 2009 (SPS), and ADB's Handbook on Involuntary Resettlement: A Guide to Good practice.The Consultant will update the draft Grievance Redress Mechanism (GRM) developed during the earlier phase and provide training to the stakeholders on safeguards around compensation, replacements costs and livelihood restoration. The outputs will be a combined report containing the minutes, attendance gender disaggregated lists and issues (disaggregated by gender) raised by the affected peoples.

a. Environment Safeguard

32. The Consultant will review the EIA report for Phase 1 prepared during the feasibility stage and will update it based on the outcomes of the detailed design. The Consultant will also develop EIA for Phase 2 based on preliminary design to be completed as a part of this Project. The EIA will take into account the construction-related impacts such as those generated by the anticipated contractors' facilities including contractors' plants, borrow pits and quarries.

33. The Consultant will review, update and finalise the environmental management plan (EMP). The EMP will identify measures to mitigate the anticipated adverse impacts, focusing primarily on avoidance rather than compensatory measures. The Consultant's attention is drawn on the need to incorporate into the detailed design the recommendations from the updated EMP. The EMP will include outline specifications to be incorporated in the civil works contract in relation to sources of construction materials and means of transport, measures for slope stabilisation and erosion control, limits on pesticides and chemicals, siting of concrete and asphalt plants, spill prevention and clean-up, dust and noise control, traffic management during construction, worksites and workers' safety, construction sites including borrow pits and quarry clean-up and rehabilitation.

34. The Consultant will assist DPWH in disclosing the EMP. The EMP will be attached to and be part of the civil works contracts. The contractors will be required to prepare their own environmental management plan based on the EMP. The mitigation measures and actions will be a full part of the construction contract and the associated costs will be included in the contractor's bid prices and subsequently in the civil works contract price.

b. Land Acquisition Plan and Resettlement Plan

35. The Consultant is responsible for finalizing a Land Acquisition and Resettlement plan (LARP) as required, ensuring that resettlement studies are conducted The Consultant will ensure that affected persons are consulted and resettlement information is disclosed to affected persons as required under the *Access to Communication Policy (2018*), and relevant Co-financiers' disclosure policies.

36. The Consultant shall prepare detailed design for all resettlement sites, if any, which should include both commercial and housing plots, civic facilities and basic infrastructure as necessary, and affected common resource properties. The Consultant shall update Land Acquisition Plan for any land to be acquired for the project, including resettlement sites based on the Detailed Design, and assist DPWH in preparing all necessary documents for initiating land acquisition as stipulated in Land Acquisition Laws in the Philippines.

37. The Consultant will assist DPWH finalize and approve the resettlement plans that was prepared in the feasibility phase of Phase 1. The plan will be updated based on the detailed design information and data. The Consultant will also develop EIA for Phase 2 based on preliminary design to be completed as a part of this Project. The updated plan will be in the form of the final database of affected households and persons, a summary of the updated detailed measurement survey data, compensation charts and replacement cost tables. The LARP costs will be re-estimated based on these updated data.

38. The Consultant will assist DPWH in disclosing the resettlement plans to affected communities and the general public in a form and language they can easily understand and in an easily accessible place. RP disclosure will be through dissemination workshops targeting affected communities, public information booklets and summary resettlement plans. The public information booklet and the summary RPs will clearly state that copies of the full RPs, both in English and Tagalog, are available to the public and can be obtained from the district and provincial offices.

39. The Consultant will develop an income restoration program (IRP) for project area; these will aim to mitigate the adverse impacts of the resettlement plans. The IRPs to be developed will be preliminary documents to be complemented as required and finalized upon completion of the detailed measurement survey, replacement cost survey and consultation with different stakeholders which will be conducted by the implementing agencies upon completion of the detailed design.

40. The IRPs will be designed mainly to prevent poverty increase as a result of the resettlement plans. The IRP as outlined in the resettlement plans of the project preparatory phase will focus on the severely affected and vulnerable households. The Consultant will first update the affected persons and household data based on the updated resettlement plans. The Consultant will set up a database of those eligible under the IRP. Severely affected persons and households and vulnerable persons/households will be identified as eligible and given priority to participate in the IRP. Other affected persons/households may also join the IRP based on their needs, such as community members who may have their jobs impacted due to land acquisition.

41. The development activities to be envisaged in the IRP will focus on training on agricultural extension, vocational training, credit access and other measures meeting the needs of the project affected persons and supporting their livelihood restoration to the pre-project level, as a

minimum. The IRP will be developed in consultation with (i) the affected persons to assess their needs and the specific measures and activities that would be required to restore and/or improve their livelihood and (ii) the provincial, district and ward authorities concerned. As much as feasible, the IRP's activities and compensation measures will be mainstreamed into on-going local development programs.

c. Gender Equality and Other Social Dimensions

42. The Consultant will carry out the following tasks:

(i) Review documentation for the project area and making recommendations as appropriate to address the objectives of ADB's *Gender and Development Policy* (1998);
(ii) Include detailed gender equality- and social inclusion-sensitive activities in the engineering design and resettlement plans;
(iii) Conduct an analysis of men and women's access to resources and services and an analysis of men and women's roles in decision making, division of labor, development priorities, and other variables that will impact on their participation in the project and guide the project design to avoid increasing the burden on women;
(iv) Assess the absorptive capacity, considering how women and men will participate in the project–their motivation, knowledge, skills and organizational resources– and how the project will fit into their society;
(v) Design mechanisms that will ensure women's access to project benefits;
(vi) Assess and propose opportunities for women affected by the project for income generation through agriculture, livestock, forestry, and other activities;
(vii) Develop gender-related training program according to the needs of women;
(viii) Assess the capacity of the proposed institutions to deliver services to women;
(ix) Develop a management program for sexually transmitted infections to address HIV/AIDS and human trafficking issues during the construction period; and
(x) Prepare a comprehensive and integrated road safety awareness campaign to be implemented during the construction period.

C. Team Composition

43. The provision of consulting services for completing the project detailed design covering both engineering will require the mobilization of a team of international and national experts. The tentative list of experts and required qualifications of the key experts are provided in Tables A3.7 and A3.8, respectively. It is anticipated that about 570 person-months of international experts and 720 person-months of national experts will be required.

Table A3.7: Staffing Requirements

International Experts

Position	Quantity	Total Person-Months
Team Leader/Sr. Structural Engineer	1	22
Senior Highway/ Road Engineer	2	40
Senior Geotechnical Engineer	2	36
Senior Hydrologist & Drainage Engineer	1	18
Senior Hydraulic Structures Engineer	2	40
Senior Bridge Engineer	4	80
Senior Mechanical Engineer	2	36
Senior Pavement Engineer	2	30
Flood Modelling Engineer	1	18
GIS/Survey Specialist	1	18
Project Coordinator/Interface Engineer	1	22
Senior Electrical Engineer	1	18
Contracts & Procurement Expert	1	18
Senior Quantity Surveyor/ Cost Engineer	2	36
Transport Economist	1	10
Transport Planning/ Traffic Engineer	1	16
QA and Miscellaneous	1	20
Utilities Interface Engineer	2	36
Senior Environment Specialist	1	18
Senior Social/ Resettlement Specialist	1	18
Gender Specialist	1	10
Climate Change Specialist	1	10
Total	**32**	**570**

National Experts

Position	Quantity	Total Person-Months
Deputy Team Leader/ Structural Engineer	1	22
Bridge Engineer	4	80
Highway/ Road Engineer	2	40
Geotechnical Engineer	2	40
Hydrologist & Drainage Engineer	2	36
Hydraulic Structures Engineer	2	36
Mechanical Engineer	2	40
Traffic Engineer	2	36
Electrical Engineer	1	18
QS-BOQ	1	20
Interface Engineer	2	44
Senior Surveyor	3	66

National Experts

Position	Quantity	Total Person-Months
Senior CAD Engineer	2	44
Cad Operators	5	110
Social/ Resettlement Expert	2	44
Environment Expert	2	44
Total	**35**	**720**

Table A3.8: Qualifications of Key Personnel

Position	Required Qualifications and Experience
Team Leader/ Sr. Structural Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • 20 years of professional experiences • 15 years in planning, project preparation and design of highway bridge structures, hydraulic structures and at least 5 years as project team leader
Senior Highway/ Road Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • 20 years of professional experiences • 12 years in planning, project preparation and design of highways/ roads
Senior Geotechnical Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • 15 years of professional experiences • 10 years of experience in foundation/ geotechnical engineering design
Senior Hydrologist & Drainage Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • 15 years of professional experiences • 10 years of experience in hydrology/ drainage design
Senior Hydraulic Structures Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • 15 years of professional experiences • 10 years of experience in design of hydraulic structures
Senior Bridge Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • 15 years of professional experiences • 10 years of experience in bridge and structure design
Senior Mechanical Engineer	• Bachelor degree in mechanical engineering, post-graduate degree preferred • 15 years of professional experiences • 10 years of experience in design of pumping system including pumping station
Senior Pavement Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • 15 years of professional experiences • 10 years of experience in pavement design
Flood Modelling Engineer	• Bachelor degree in civil engineering or equivalent • 10 years of professional experience in flood modelling
Contracts & Procurement Expert	• Bachelor degree in engineering/ construction science, post-graduate degree preferred • 15 years of professional experiences • 10 years in preparation/management of construction contracts and procurements for international bidding
Transport Economist	• Bachelor degree in civil engineering, post-graduate degree preferred

Position	Required Qualifications and Experience
	• 15 years of professional experiences • 10 years of experience in economic and financial analysis, 5 years of which on transport/infrastructure projects
Transport Planning/ Traffic Engineer	• Bachelor degree in transport engineering or relevant field, post-graduate degree preferred • 15 years of professional experiences • 10 years in transport planning/ road network design
Senior Environment Specialist	• Bachelor degree in finance, business or economics, post-graduate degree preferred • 15 years of professional experiences • 10 years in environment impact assessment and design of environment management/ monitoring plans for road/ infrastructure projects
Senior Social/ Resettlement Specialist	• Bachelor degree in social science, post-graduate degree preferred • 15 years of professional experiences • 10 years in social development and resettlement planning, preferably for road/infrastructure projects
Climate Change Specialist	• Bachelor degree in civil engineering • 15 years of professional experiences • 8 years in climate change assessment and climate resilience design
Deputy Team Leader/ Structural Engineer	• Bachelor degree in civil engineering • 15 years of professional experiences • 8 years experience in design/ construction of bridge and hydraulic structures

C. Technical Deliverables

45. Table A3.9 is a summary of the Consultant's output / deliverables:

Table A3.9: Reporting Requirements

Reports/Documents	Deadline for Submission
Inception Report. The report shall cover: (i) overall assessment of the project; (ii) detailed work program covering all TOR tasks; and (iii) issues that may require DPWH's actions.	1 month after issuance of the Notice to Proceed (NTP)
Reports on technical field work: Topographic survey, soil investigations, traffic counts, hydrology and hydraulic.	8 months after NTP issuance.
Preliminary design report. Engineering drawings, draft technical specifications and draft general conditions of contract.	10 months after NTP issuance
Draft detailed design documents: Design report, complete set of drawings, bill of quantities, contract packaging, cost estimate	16 months after NTP issuance
Draft tender documents. Completed in accordance with ADB Standard Bidding documents and Philippines applicable standards	16 months after NTP issuance
Final design report and documents. Including detailed engineering drawings, technical specifications, bill of quantities, contract packaging and cost estimate.	3 months of receipt of DPWH and ADB's comments on draft documents.
Final Tender Documents. 20 sets for each contract package.	3 months of receipt of DPWH and ADB's comments on the draft documents.
Draft updated Initial environmental examination (IEE) or environment impact assessment (EIA) and updated environmental management plan (EMP)	13 months after NTP issuance

Reports/Documents	Deadline for Submission
Final updated IEE/EIA and EMP	3-month of receipt of DPWH and ADB's comments on the draft documents.
Draft updated resettlement plans along with the income restoration program and draft public information booklets.	13 months after NTP issuance
Final RPs along with income restoration program and draft information booklet and arrangements for resettlement plans disclosure.	2 months of receipt of DPWH and ADB's comments on the draft documents.
Draft report on gender equality and social dimension	10 months after NTP issuance
Final report on gender equality and social dimension	3 months of receipt of DPWH and ADB's comments on the draft documents
Final design report summarising the services outputs	22 months after NTP issuance
Final workshop	22 months after NTP issuance

ADB = Asian Development Bank, DPWH = Department of Public Works and Highways, EIA = environment impact assessment, EMP = environmental management plan, NTP = notice to proceed, TOR = terms of reference.

Outline Terms of Reference for Independent Checking Engineer for Laguna Lake Shore Road Network Project

I. Background

1. The Asian Development Bank (ADB), on 27 October 2017, approved a technical assistance (TA) loan of $100 million from its Ordinary Capital Resources following a request by the Government of the Republic of Philippines, to help finance the Infrastructure Preparation and Innovation Facility (IPIF) Project. The Department of Finance (DOF) is the Executing Agency, and the Department of Public Works and Highways (DPWH), and the Department of Transport (DOTr) are the Implementing Agencies for the project.

2. The IPIF will have four outputs aimed at development of country's transport infrastructure, flood protection, and improvement of the project development management systems of DPWH and DOTr for project preparation and sustainable management systems. The Department of Public Works and Highways (DPWH) is the Implementing Agency for Output-1 (roads and bridges) for the project, which includes the Laguna Lakeshore Road Network Project.

3. The construction of the Laguna Lakeshore Road Network Project aims at attaining the following objectives.

Construction of a road on viaduct or dike for Laguna Lake in order to:

(i) Reduce transportation constraints on the existing north south roads on the westside of the lake, induce economic development in the area and nearby provinces and promote the achievement of the development objectives being pursued in the area.

(ii) Provide safer, convenient and faster travel for motorists coming from north and south of the project area to various tourist business destinations in Laguna, Rizal, Quezon and Batangas linking the northern and southern part of the Laguna Lake existing road networks.

4. Feasibility studies for the Laguna Lakeshore Road Network Project is currently being undertaken by the consultants, Ove Arup and Partners Hong Kong Ltd., and is expected to be complete by end of 2019. The project will comprise two phases – Phase 1 of the Project comprising Detailed Engineering Design (DED) leading through procurement action to award of construction contracts, and Phase 2 comprising the physical construction of the Project.

5. The Implementing Agency, DPWH, intends to engage an independent Checking Engineer (CE) to undertake an independent proof check of the detailed engineering design of the Laguna Lakeshore Road Network and associated infrastructure. The document sets out the Terms of Reference for the independent Checking Engineer.

II. Objectives for the Checking Engineer

6. The primary objective of engaging the independent checking engineer is to ensure that the DED of the main bridges and associated infrastructure satisfies the objectives set down in the Terms of Reference for the project and that of the DED consultants, and to enable award of the construction contracts for the project, fully meeting the requirements of the DOF and DPWH, and the ADB.

7. The design check is required to be carried out by an organization fully independent of the Design Consultant and agreed by the Employer (DPWH).

8. The Checking Engineer shall be responsible for checking the deliverables of the Design Consultant with due professional skill and care in accordance with the agreed design criteria. In course of checking, the Checking Engineer shall draw the attention of the Design Consultant and DPWH to any aspect of the agreed Design Criteria where are considered essential, DPWH's agreement to variations in the Design Criteria shall be confirmed in writing.

9. The Checking Engineer shall carry out a comprehensive examination of all aspects of the permanent works design produced by the Design Consultants, as defined below, including any proposed departures from the adopted design standards and/or specifications that affect the structural integrity.

III. Scope of the Services

A. Bridges/Viaducts

11. The Checking Engineer's scope shall include an independent check of the permanent works design both in service and during erection. The Checking Engineer shall consider the erection methodology and construction sequence of the Bridges/Viaduct (i) to ensure that the structural design are satisfactory in the temporary condition and do not adversely affect the capacity or behavior of the permanent structures, and (ii) to ensure the constructability of the design is fully addressed with regard to safety in construction.

12. The Checking Engineer shall perform a fully independent structural static and dynamic analysis to determine the load effects in the structures of the bridges/viaduct and to check compliance of the design with the Contract Objective and the Design Criteria. In preparing the computer models for structural analysis, the Checking Engineer shall independently derive the geometry, material and section properties from the information given on the Detailed Design drawings and shall determine the appropriate loading cases and combinations from the design criteria.

13. The Checking Engineer's analytical work shall be independent of that of the Design Consultant and carried out without exchange of calculation sheets or similar information between the Design Consultant and the Checking Engineer.

14. Specifically, the Checking Engineer will review and comment on the following:
    (i) Design drawings;
    (ii) Design statements or reports;
    (iii) Design Criteria documents including design assumptions;
    (iv) Site survey and geotechnical investigation reports;
    (v) Materials and workmanship specifications;
    (vi) Wind tunnel tests proposals and interpretative reports (if any);
    (vii) Scope and requirements of all additional studies and special investigation reports;
    (viii) Construction method and erection sequence assumptions;
    (ix) Design criteria for major elements of temporary works including design loads for critical load cases;
    (x) Other reports relating to the design and construction; and
    (xi) Design program and design management information.

17. If factored in the feasibility study and prompted by the Detailed Design criteria, the Checking Engineer will also perform an independent review of the flood hydrology, scour assessment, wave climate, scour depth, geometry, and morphological study.

18. The scope of independent checking will not include the following:
(i) Dimensional and level checks of the drawings and setting out information;
(ii) Electrical and mechanical design and drawings;
(iii) Bridge deck furniture such as parapet rails, lighting columns, signs, etc;
(iv) Drainage design; and
(v) Highway alignment design of the Main Bridges.

B. Confidentiality

19. All reports, documents, correspondence, drawings, notes, specifications, statistics, work product in any form and, technical data compiled or prepared by the Checking Engineer and communicated to DPWH and ADB in performing the services (in electronic form or otherwise and including computer disks containing data) shall be the sole and exclusive property of the DPWH, and may made available to the general public only at its sole discretion.

20. Senior members of the Checking Engineer's team shall be required to sign a Confidentiality Agreement to the above effect.

C. Time Schedule

37. DPWH shall provide an up-to-date design program at the commencement of the Checking Engineer's work together with dates of proposed delivery of documents and drawings. The checking shall be carried out in a staged manner and coordinated with the project program. Both activities of design and checking shall proceed in parallel as far as practicable. DPWH will provide copies of the Terms of Reference for the detailed design at the commencement of the Checking Engineer's work together with copies of the Interim and Final Scheme Design Reports and Design Criteria.

38. The main detailed design package for independent checking will be the tender issue drawings. Prior to the issuance of tender drawings, the Design Consultant will provide advance copies of the detailed design drawings to assist the independent checking process.

39. Meetings will be arranged during the course of the detailed design between the Design Consultant and the Checking Engineer to discuss aspects of the design and provide briefings on the design progress. The Checking Engineer may be required to visit the Design Consultant's project office in Manila or Design office for the Bridges/Viaduct in Design Consultant's headquarters for these meetings. Otherwise, it is assumed that the majority of the independent check will be carried out in the Checking Engineer's home office.

40. The Checking Engineer shall be proactive in resolving any issues raised in the independent checking process and not cause any unnecessary delay to the design process.

D. Deliverables

41. The Checking Engineer shall provide a Progress Report to DPWH every two months summarizing progress made and any outstanding issues to be resolved.

42. The Checking Engineer shall provide review comments on the tender issue design packages within 30 days of receipt.

43. Following resolution of any outstanding issues, the Design Consultant shall prepare draft issued for construction drawings for final review and acceptance by the Checking Engineer. On acceptance of the draft issued for Construction Drawings, the Checking Engineer shall provide a Proof Check Certificate in a format to the satisfaction of DPWH. An indicative Checking Certificate is provided in Appendix-A. This will form the basis for the Proof Check Certificate.

E. Personnel

44. The Checking Engineer shall be required to provide senior managerial and technical experts and support staff to efficiently manage and execute the work to the program and to meet the objectives and requirements of these TOR. Personnel identified in the Checking Engineer's proposal will be expected to be made available for the duration of the works.

45. If, at any time, during progress of the project, the Checking Engineer wishes to propose a substitute for the nominated person, then the proposed substitute must have at least the same or better qualifications and experience as the nominated person proposed to be replaced. The substitute shall be accepted subject to DPWH's approval. Replacement of personnel shall be accepted under exceptional circumstances only.

46. The Consultant firm (intending for engagement as Checking Engineer) will be required to submit in its proposal CVs for the positions stated in the Table: "Category of Experts for the Checking Engineer" given below. For the purpose of ranking technical proposals, evaluation of the Consultant's proposed personnel will be based on the CVs of the positions included in Evaluation Sheets to be used for the evaluation of Technical proposals (Appendix to Section…, Instructions to Consultants, (ii) Data Sheet).

47. Qualification and experience requirements for selected personnel described below are to broadly define the preferred qualifications and experience to be possessed by a selection of nominated personnel of the Checking Engineer. This appendix is to supplement the information already provided elsewhere in the RFP that directly or indirectly defines the level and range of expertise, qualifications and experience to be possessed by individual experts of the Checking Engineer, and is, not an exhaustive list of requirements.

Table A3.10: List of Experts for the Checking Engineer

LIST OFEXPERTSFORTHECHECKINGENGINEER		
Personnel	**Number(International)**	**TotalPerson-Months**
TeamLeader/ Senior Structural Engineer	1	16
SeniorBridge/StructureDesigner	2	36
SeniorGeotechnicalEngineer	2	24
Senior Hydraulic Structures Engineer	2	36
Senior Mechanical Engineer	1	18
Senior Hydrotechnical Engineer	1	10
SeniorMorphologist	1	12

48. **Team Leader (International)**

(i) Senior engineer with sufficient experience as a team leader of large multi-disciplinary consulting team engaged in the independent proof check or detailed design of a bridge and hydraulic structures of similar or greater magnitude and/or nature to this project;
(ii) Familiar with FIDIC Conditions of Contract and possessing experience in the delivery of independent checking projects using similar contract documentation; and
(iii) Minimum of Bachelor's degree in civil engineering with at least 20 years of work experience in similar field to this project;

49. **Senior Bridge Engineers (International)**

(i) Senior engineers with sufficient experience in the independent proof check or detailed design of a bridge of similar magnitude and/or nature to this project;
(ii) Experience in the construction supervision or delivery for construction of a bridge of similar magnitude and/or nature to this project;
(iii) Experience in bay/sea hydraulic techniques of bridge design; and
(iv) Minimum of a Bachelor's degree in civil engineering with at least 20 years of work experience in similar field to this project;

50. **Senior Geotechnical Engineer (International)**

(v) Senior engineer with sufficient experience in the independent proof check or detailed design of a bridge of similar magnitude and/or nature to this project;
(vi) Experience in the construction supervision or delivery for construction of pile foundations of a bridge of similar magnitude and/or nature to this project; and
(vii) Minimum of a Bachelor's degree in geotechnical engineering with at least 20 years of work experience in a similar field to this project.

51. **Senior Hydrotechnical Engineer (International)**

(vi) Seniorhydrotechnicalengineerwithsufficientexperienceintheindependentproofchec kordetaileddesignofmajor bay crossingstrainingstructures in the region;
(vii) Experienceoftheapplicationofphysicalandnumericalmodelsforhydraulicdesignofba nkprotectionworksandforbridgescourassessment;
(viii) Experienceinthemaintenanceofbankprotectionworksonbay crossingssimilartothe Laguna Lakeandonincorporatingmaintenanceconsiderationsintothedesign;
(ix) Experienceinconstructionplanningandtenderingof Bay/seashoreprotectionworks; and
(x) MinimumofMastersdegreeincivilengineeringwithatleast20yearsofworkexperiencei nasimilarfieldtothisproject;

52. **Senior Mechanical Engineer (International)**

(i) Senior engineers with sufficient experience in the independent proof check or detailed design of a pumping system including pumping stations of similar magnitude and/or nature to this project;
(ii) Experience in the construction supervision or delivery for construction of a pumping system of similar magnitude and/or nature to this project; and
(iii) Minimum of a Bachelor's degree in mechanical engineering with at least 20 years of work experience in similar field to this project.

53. **Senior Hydraulic Structures Engineer (International)**

(i) Senior engineers with sufficient experience in the independent proof check or detailed design of hydraulic structures of similar magnitude and/or nature to this project;

(ii) Experience in the construction supervision or delivery for construction of hydraulic structures of similar magnitude and/or nature to this project; and

(iii) Minimum of a Bachelor's degree in civil engineering with at least 20 years of work experience in similar field to this project.

54. **Senior Morphologist (International)**

(xi) Senior bay/ocean morphologist with sufficient experience in assessing the role of channel morphology on the performance of major marine/Bay/sea shore protection works on water bodies similar in character to Laguna Lake;

(xii) Experience in assessing historical patterns of channel instability and predicting rates of bay shore/bank erosion/scouring on water bodies similar in character to Laguna Lake;

(xiii) Experience in assessing the relation between plan form geometry and scour on fixed bay crossings; and

(xiv) Minimum of Masters degree in earth science or civil engineering, with at least 20 years of experience in a similar field as this project.

F. Payment

55. Payment to the Checking Engineer shall be made on the basis of deliverables, as follows:

Table A3.11: Progress Payment

Deliverables	Eligible Payment
Provision of Progress Report	10% of Contract Price
Provision of Report on Tender Issue	70% of Contract Price
Provision of Proof Check Certificate	20% of Contract Price
Reimbursables (attendance in meetings)	At cost

56. Final details shall be reviewed in the Financial Negotiations.

OUTLINE TERMS OF REFERENCEFOR FLOOD RISK MANAGEMENT CONSULTANTS

A. Project Background

1. The Asian Development Bank (ADB) is providing a technical assistance loan for Infrastructure Preparation and Innovation Facility (IPIF) to the Government of the Philippines (the government). IPIF supports two key agencies responsible for national public infrastructure investments, the Department of Public Works Highways (DPWH) and Department of Transportation (DOTr), in (i) making sound and objective investment decisions; (ii) providing robust project pipelines; and (iii) helping fill the infrastructure gap of the country. The technical assistance loan comprises four outputs: (i) Output 1: Preparation of Roads and Bridges Projects; (ii) Output 2: Preparation of Water Projects; (iii) Output 3: Preparation of Transportation Projects; and (iv) Output 4: Improvement of Project Development Management System.

B. Current Status of Implementation

2. Output 2 of IPIF supports DPWH in planning and preparation for flood risk management investment projects in six major river basins (Apayao-Abulog and Abra in Luzon; Jalaur in Visayas; and Agus, Buayan-Malungon, and Tagum-Libuganon in Mindanao). It will inform the design of the Integrated Flood Risk Management Sector Project (the project), to be funded by ADB, for approval in 2020. The project includes three outputs: (i) strategic flood risk management (FRM) planning improved; (ii) flood protection infrastructure in six river basins developed; and (iii) capacity for community-based FRM enhanced. Output 2 of IPIF directly supports output 2 of the ensuing project by preparing (i) six FRM master plans of the target river basins; (ii) feasibility studies; (iii) detailed engineering design of priority infrastructure; (iv) procurement; and (v) social and environmental safeguard assessments.

3. ADB is also providing transaction technical assistance (TRTA) to the government to prepare the Integrated Flood Risk Management Sector Project. The TRTA, in incorporation with IPIF, supports (i) the preparation of the project design, particularly its output 1 and 3; (ii) strengthening of output 2 by reviewing deliverables of IPIF; and (iii) the preparation of a preliminary roadmap and investment program for FRM in the Philippines. The preliminary roadmap and investment program for FRM will identify priority river basins to address flood risk management issues beyond the six major river basins that are currently included in the IPIF and the forthcoming Integrated Flood Risk Management Sector Project.

C. Consulting Assignment

4. The additional financing will support planning and preparation of FRM investment projects for selected river basins. The indicative list of projects is provided in Table A3.12. The target river basins will be decided once the priority river basins are identified by the government. It is envisioned that about 10 principal river basins will be selected and two consulting firms will be recruited, each covering half of the target river basins, to undertake the consulting assignment.

Table A3.12: Indicative List of Projects

Project	Activities
Principal River Basins Flood Risk Management (indicative amount: $31.5 million)	Master planning, Feasibility Studies, Detailed Engineering Design, and Tender Support

1. Implementation Arrangements

5. DPWH, through its Unified Project Management Office (UPMO) Flood Control Management Cluster, is the implementing agency responsible for the day-to-day management of the project outputs of the consultant under Output 2.

6. The recruitment of the consulting firms (the consultant) will be undertaken by ADB in accordance with the ADB Procurement Policy (2017, as amended from time to time).

7. The consultants will be recruited following quality- and cost-based selection procedures with full technical proposal. The successful proposal will constitute the basis for a retainer contract to be signed between DPWH and the consultant for the works to be carried out under output 2. Detailed terms of reference (TOR) will be prepared by the DPWH UPMO-Flood Control Management Cluster for each river basin in the contract, and the consultant will be requested to submit detailed technical and financial propositions according to the detailed TOR. The propositions, including proposed approach and methodology, work plan, and technical and financial information, will be reviewed by the implementing agencies and, if satisfactory, the consultant will be requested to carry out the assignment at an agreed price generally on a lump sum basis. This process has been chosen to ensure expeditious implementation of the project by reducing the number of consultants to be selected and therefore eliminating the repetitive and lengthy selection process for each river basin.

2. Consulting Services

8. The key objective of the consulting services is to assist the government in the planning and preparation of public sector priority infrastructure investments for flood risk management. For each river basin, the consultant may be required to carry out the following activities: (i) master planning (which may include preparation of master plans or other studies); (ii) feasibility studies; (iii) preliminary design studies and surveys; (iv) detailed engineering design; (v) preparation of bidding documents and assistance to the implementing agencies in the tendering process; and (vi) preparation of consultant selection documents and assist in the recruitment of construction supervision consultants. The consultant may be required to carry out any or all of these activities for each river basin, or in cases where some or all of the activities have been completed or partly completed by a third party, the consultant may be required to perform a due diligence review for the activities that have been carried out to ensure that the outputs meet the highest technical standards as well as conformance to norms and regulations of the government and the financing institution including social and environmental safeguards. Given that FRM is a key component linked to integrated water resources management, the consultant will consider to the extent possible the principles and concepts outlined in the Integrated Water Resources Management Planning Guidelines published by DPWH in April 2016. The exact scope of the assignment for each river basin as well as the required outputs will be described in the detailed TORs and request for proposition for each assignment.

3. Outputs

9. For each river basin, the consultant will be required to deliver specific outputs. The outputs will be described in the detailed TORs for each river basin and will depend on whether the consultant will be required to carry out the activity or perform due diligence review of the output of a third party. For each type of activity, the typical required outputs may be as follows:

a. Master planning

10. The consultant will develop a comprehensive FRM strategy and prepare a master plan for FRM investments in the identified river basins. In cases where the master plan has already been carried out by a third party, the consultant will perform a due diligence review of the master plan prepared by the third party. If the due diligence review reveals insufficient or inadequate analysis, the consultant will be required to carry out additional studies and analysis and update/upgrade the master plan to meet the highest standards as well as the norms and regulations of the government and the financing institution including social and environmental safeguards. The master plan will include but shall not be limited to:

(i) data and information collection (historic floods and flood prone areas, socio-economic information of flood affected areas, climatic and meteorological conditions, etc);
(ii) hydro-topographic survey (master plan level);
(iii) hydrologic and hydraulic analysis (including future climate change effects);
(iv) coastal and sediment transport analysis (if applicable);
(v) evaluation of possible structural and non-structural measures;
(vi) flood risk mapping and analysis (master plan level);
(vii) stakeholder analysis;
(viii) General Environmental Impact Assessment;
(ix) Environmental Assessment and Review Framework, where applicable;
(x) Resettlement Framework, where applicable;
(xi) Indigenous Peoples Development Framework, where applicable;
(xii) risk screening of social (resettlement and indigenous peoples) and environmental safeguards for different measures proposed;
(xiii) preparation of FRM master plan, including preliminary design concept of key FRM infrastructures; and
(xiv) preliminary cost estimates and economic analysis of key flood risk management infrastructures.

b. Feasibility Study

11. The consultant will prepare a feasibility study report for FRM investments in the identified river basins. In cases where the feasibility study has already been carried out by a third party, the consultant will perform a due diligence review of the feasibility study carried out by the third party. If the due diligence review reveals insufficient or inadequate analysis, the consultants will be required to carry out additional studies and analysis and update/upgrade the feasibility study to meet the highest standards as well as the norms and regulations of the government and the financing institution including social and environmental safeguards. The feasibility study should contain a detailed assessment of the technical as well as economic and financial viability of infrastructures identified in the master plan. Specifically, the feasibility study will include but shall not be limited to the following:

(i) hydro-topographic survey (feasibility study level);
(ii) flood inundation and damage assessment (flood risk analysis at feasibility study level);
(iii) population growth projections including projected changes in rural and urban population distribution;
(iv) determination of socio-economic characteristics of the beneficiaries and pattern of distribution of benefits;
(v) determination of combination of measures for flood risk management;
(vi) environmental, social, and economic analysis;

(vii) Land Acquisition Plan and Resettlement Action Plan;
(viii) Environmental Impact Assessment;
(ix) Indigenous Peoples Plan (where applicable);
(x) Social Impact Assessment, including impacts on vulnerable groups, women and children, and minorities;
(xi) Gender Action Plan;
(xii) estimation of land acquisition and resettlement costs;
(xiii) detailed cost estimation of the project and future costs of operation and routine and periodic maintenance;
(xiv) financial and economic analysis (financial internal rate of return and economic internal rate of return);
(xv) implementing arrangements; and
(xvi) funding source.

c. Preliminary Engineering Design Studies

12. Prior to detailed engineering design, the consultant may be required to carry out and/or contract for carrying out all necessary surveys and studies that have been identified by the feasibility study and are required for the detailed design of the project, including but not limited to:

(i) preliminary survey and studies/assessment;
(ii) preliminary engineering design;
(iii) hydro-topographic survey;
(iv) geological and geotechnical investigations;
(v) Environmental Impact Assessment;
(vi) Indigenous Peoples Plan;
(vii) Social Impact Assessment; and
(viii) Gender Action Plan.

d. Detailed Engineering Design

13. The consultant may be required to carry out detailed engineering design including but not limited to the following tasks:

(i) hydrologic assessment;
(ii) hydraulic design;
(iii) seismic evaluation studies;
(iv) slope stability analysis;
(v) seepage analysis;
(vi) sediment transport analysis;
(vii) geological and geotechnical analysis;
(viii) design analysis report;
(ix) structural and earthwork design;
(x) design parameters for seismic conditions;
(xi) Environmental Impact Assessment;
(xii) Environmental Management Plan;
(xiii) Indigenous Peoples Plan;
(xiv) Land Acquisition and Resettlement Plan; and
(xv) Gender Action Plan.

14. **Design-Build Contracts**. In some cases, it may prove more economical and expeditious to carry out a subproject on a design-build basis. In such cases, the detailed engineering design will be carried out by the design-build contractors. The consultant, however, may be required to

prepare conceptual design and design-build bidding documents and assist the implementing agencies in the evaluation of the tenders related to such contracts.

e. Preparation of Bidding Documents

15. Following detailed engineering design, the consultants will be required to prepare bidding documents ready for tendering of flood risk management investment structures and assist the implementing agencies in the bidding process and evaluation of tenders. Bidding will be carried out following international competitive bidding or national competitive bidding procedures for construction of civil works. Preparation of bidding documents may include but not be limited to the following:

(i) invitation to bid;
(ii) detailed design drawings;
(iii) detailed bidding drawings;
(iv) technical specifications;
(v) bidding documents;
(vi) assistance in post-qualification of bidders;
(vii) assistance in preparation of bid evaluation report for submission to the bids and awards committee;
(viii) assistance in resolution of award and notice of award; and
(ix) other pertinent documents related to pre-construction activities.

16. Design-Build Contracts. In case it is determined that a contract is to be awarded on a design-build basis, the consultant will be required to prepare bidding documents for a design build contract and provide assistance to the implementing agencies in the evaluation of tenders and award of contract.

f. Selection of Construction Supervision Consultants

17. In parallel to the preparation of bidding documents and the bidding of civil works contracts, the consultant may be required to assist the implementing agencies in the selection of consultants for construction supervision. This may include but not be limited to the following:

(i) preparation of criteria for evaluation of expressions of interest (EOIs);
(ii) guidance in the evaluation of EOIs and preparation of shortlist;
(iii) preparation of TORs for construction supervision consultants;
(iv) preparation of Request for Proposals;
(v) preparation of technical evaluation criteria;
(vi) guidance in the evaluation of technical and financial proposals; and
(vii) guidance during contract negotiations.

g. Training and Transfer of Knowledge

18. In parallel to the other outputs, the consultant may be required to prepare curricula and conduct trainings and technology transfer upon the request of the implementing agency on, but not limited to the following:

(i) flood risk management master planning;
(ii) sabo engineering;
(iii) coastal engineering;
(iv) dam engineering;
(v) water resources engineering;
(vi) integrated water resources management;

(vii) value engineering; and
(viii) recent technological developments in the field of flood control, urban drainage, sabo, coastal engineering and dam engineering.

D. Key Required Expertise

19. It is expected that the consultant will be required to provide the following key expertise at various times during the assignment. Other expertise may also be required and will be determined as individual assignments or projects will become more clearly defined.

Table A3.13: Key Required Expertise

Expertise	Minimum Qualifications	Expertise	Minimum Qualifications
Project Management	20 years	Economics	15 years
Integrated Water Resources Management	15 years	Finance	15 years
		Procurement	15 years
Flood Risk Management	15 years	Geodetic Engineering	15 years
Flood Control Engineering	15 years	Climate Change Adaptation	10 years
Hydrology/Hydraulics	15 years	Land Use Planning	10 years
Dam and Flood Control Engineering	15 years	Crisis /Disaster Risk Management	10 years
		Environmental Safeguards	10 years
Drainage Engineering	15 years	Sociology/social development	10 years
Geology/ Geotechnical Engineering	15 years	Gender	10 years
		Land Acquisition/ Resettlement	10 years
River Structural Engineering	15 years	Indigenous People	10 years

20. These key experts will not necessarily be part of the core team but will be expected to lead or be responsible to oversee the work of sub-team of experts during the various assignments. During the assignments, it may be necessary for the consultant to bring additional external expertise required with prior approval of the client.

E. Proposal Preparation

21. The shortlisted consulting firms are requested to prepare a detailed description of how they propose to deliver the outputs of the contract in the Approach and Methodology section of their proposal. In this narrative, firms should clearly explain how they will achieve the outputs and defined deliverables and include detailed information on key and non-key experts that will comprise the core project team and their proposed input. The consultant must also describe the experience of the firm or joint venture (JV), and core team key experts in the Philippines or similar geopolitical environment.

22. **Core team of experts**. The consultant must provide a minimum of 40 person-months of key experts (core team) to be posted at the PMU for the duration of the contract. The core team, including a project management specialist/team leader, senior flood risk management specialist, senior flood control engineer, and senior integrated water resources management specialist, will be constituted preferably with permanent employees of the consulting firm or JV or experts working exclusively for the firm or JV member with significant experience with the firm in relevant field of activities. The team will be based at DPWH's office in Pasig City but may be required to travel to project sites frequently. Only one curriculum vitae (CV) must be submitted for each key and non-key expert included in the proposal. Only the CVs of key experts will be scored as part of the technical evaluation of proposals. The CVs of non-key experts will not be scored, however,

ADB will review the individual CVs and may reject the CVs of non-key experts if the experience and qualification of the experts are considered inadequate or substandard. The overall composition of the core team, the credentials of non-key experts, and the design of the team as a whole— including the appropriateness of the level of inputs (home, field, total)—will be taken into consideration in the evaluation of Quality of Approach and Work Plan and Personnel Schedule criteria.

23. All positions under the contract, both key and non-key experts for the core team, must be included and budgeted for in the financial proposal in accordance with the person-month allocation required for each as defined by the consultant's proposed approach and methodology and work plan. The budget for the key and non-key experts to be appointed for each individual subproject assignments will be the object of separate propositions during implementation and will be paid from the unallocated funds category reserved under the contract for those subproject assignments. Likewise, travel costs of the core team to cover expenses of travel between the implementing agencies, headquarters, and the project sites, which cannot be determined until the project sites are selected, will be allocated from unallocated funds during implementation.

24. The proposal should also include a confirmation of availability of key experts listed in Table A3.13 that may be assigned senior positions in various subproject assignments. The qualifications and expertise of those key experts will be a key consideration in the evaluation of the qualification of the firm or JV.

1. Key Experts (Core Team)

25. The consultant has full discretion over the composition and structure of the proposed core team of experts and is responsible to provide all necessary expertise and qualifications to deliver the required output of the assignment. However, as a minimum requirement, the team must comprise 40 person-months of input for 4 key positions including: (i) project management specialist/team leader (20 person-months); (ii) senior flood control engineer (8 person-months); (iii) senior flood risk management specialist (8 person-months); and (iv) senior integrated water resources management specialist (3 person-months) (Table 3.14). The person-months indicated in Table A3.14 are strict minimum and the consultant may propose longer inputs if it is deemed necessary to meet the objectives of the approach and methodology.

Table A3.14: Key Expert Qualifications

Position	Minimum Person-Months	Requirements
Project Management Specialist/Team Leader	21	• Advanced degree in engineering or other relevant fields; • Minimum 20 years of professional experience related to preparation of master plans/feasibility studies/detailed engineering design of various infrastructures; • Minimum 15 years in professional experience as project manager/team leader of development studies in flood risk management and/or other water infrastructures
Senior Flood Risk Management Specialist	8	• Advanced degree in engineering or other relevant field; • Minimum 15 years of professional experience related to planning and designing major flood risk

Position	Minimum Person-Months	Requirements
		management projects
Senior Flood Control Engineer	8	• Advanced degree in engineering or other relevant field; • Minimum 15 years of professional experience related to planning and designing major flood control infrastructure projects
Senior Integrated Water Resources Management Specialist	3	• Advanced degree in engineering or other relevant field; • Minimum 15 years of professional experience related to planning and designing integrated water resources and river basin management projects

26. **Non-Key Experts**. In addition to the mandatory key experts described in Table A3.14, the consultant is expected to provide non-key experts for the core team to ensure all aspects of the work can be undertaken and all deliverables and reports are completed in accordance with the implementation schedule. All non-key experts must have adequate qualifications and experience in a relevant field with a minimum of 5 years of experience.

27. In addition, the consultant is required to provide technical and administrative staff necessary for the core team to achieve its role and objectives. The proposal must provide a list of technical and administrative personnel to be provided. The consultant is responsible to ensure that the technical and administrative personnel is sufficient to effectively carry out its functions. The cost of technical and administrative staff may be included in the financial proposal, but it is understood that if additional staff is required during implementation of the contract to meet its objective and schedule, the cost of such additional staff will be borne by the consultant and will not be compensated.

2. Specific Tasks of Key Experts

a. Project Management Specialist/ Team Leader

28. The project management specialist/team leader will be responsible for:

(i) overall liaison with the implementing agencies;
(ii) preparation of propositions for each individual assignment and negotiations with the implementing agencies;
(iii) coordination of the input and output of the sub-teams of consultants (both in the field and home based) involved in the individual assignments;
(iv) quality control of work carried out and output delivered by the sub-teams;
(v) overall management and administration of the contract; and
(vi) reporting to the implementing agencies on progress of work being carried out by the core team and the sub-teams.

29. The project management specialist/team leader must have an advanced degree from a recognized institution in engineering or other relevant field and have at least 20 years of professional experience including 15 years in management of development studies and projects in flood risk management and/or other water infrastructures. Experience in the Philippines or similar geopolitical environment would be considered an asset.

b. Senior Flood Risk Management Specialist

30. The senior flood risk management specialist will be responsible for:

(i) advising the team leader in the preparation of propositions for flood risk management strategies, including structural and non-structural measures, for each river basin;
(ii) monitoring the work and output of the sub-teams and ensure that flood risk management approach is adopted; and
(iii) advising the team leader and the implementing agencies on matters related to flood risk management project design and implementation.

31. The senior flood risk management specialist will have an advanced degree from a recognized institution in engineering or other relevant field and have at least 20 years of professional experience in hydrology/hydraulics, flood risk management, or relevant fields including 15 years in developing flood risk management projects. Experience in dealing with climate adaptation and nature-based solutions is an asset. Experience in the Philippines or similar geopolitical environment would be considered an asset.

c. Senior Flood Control Engineer

32. The senior flood control engineer will be responsible for:
(i) advising the team leader in the preparation of propositions for flood control subprojects;
(ii) monitoring the work and output of the sub-teams involved in carrying out flood control subprojects; and
(iii) advising the team leader and the implementing agencies on matters related to flood control design and construction.

33. The senior flood control engineer will have an advanced degree from a recognized institution in engineering or other relevant field and have at least 20 years of professional experience including 15 years in feasibility studies, planning, and engineering design of major flood control or other water structures. Experience in the Philippines or similar geopolitical environment would be considered an asset.

d. Senior Integrated Water Resources Management Specialist

34. The Senior Integrated Water Resources Management Specialist will be responsible for:

(i) advising the Team Leader in the preparation of propositions that adopt the river basin approach and integrated water resources management principles;
(ii) monitoring the work and output of the sub-teams and ensure that the river basin approach and integrated water resources management principles are adopted; and
(iii) advising the Team Leader and the implementing agencies on matters related to integrated water resources management.

35. The Senior Integrated Water Resources Management Specialist will have an advanced degree from a recognized institution in Engineering or other relevant field and have at least 20 years of professional experience including 15 years in developing integrated water resources

management projects. Experience in the Philippines or similar geopolitical environment would be considered an asset.

3. Services Provided by the Employer

36. DPWH will assign relevant counterpart staff to the project on a full-time basis. The government will provide office space in Pasig City for the core team. DPWH shall assist in obtaining the necessary permits, visas, and other documents needed by the consultant to carry out the services under the contract. DPWH will facilitate field visits and arrange meetings with relevant authorities and agencies. In addition, DPWH shall coordinate with the respective authorities responsible for maintaining peace and order along project location if and when necessary, upon request of the consultant. Any other office requirements including telephone connection, internet connection, equipment and consumables, and transport will be provided or arranged by the consultant. The government will pay (or cover through other allowed means in line with the Philippine taxation framework), the applicable Philippine taxes and duties on the contract on behalf of the consultant. Notwithstanding the foregoing, the assumption of the government of taxes due to the consultant is contingent to the compliance of the same to the requirements of the government. Additional information regarding the tax law in the Philippines can be found at the Republic of the Philippines Bureau of Internal Revenue website.[1]

4. Equipment

37. The proposal should identify the critical element of equipment that will be required by the core team. In addition, the consultant will be requested to procure equipment to assist the implementing agency and the subproject teams in their assignments. The equipment and supplies for the subproject teams will be the object of propositions for each subproject and should not be included in the core team requirements. All equipment and assets purchased under the project and paid by the project work will adhere to ADB Procurement Policy (2017, as amended from time to time), and shall remain in the possession of the government. Upon completion of the project, these assets will be turned over to the government.

F. Request for Proposition

38. As part of its proposal, the consultant is required to prepare propositions for the sub-projects. Each proposition should contain both technical and financial components. This will allow for early mobilization, not only of the core team, but also the subproject teams towards meeting the objective of expediting implementation of the project. The technical component shall include the detailed approach and methodology, CVs of key and non-key experts, as well as proposed work plan and personnel schedule for the subproject. The financial component shall include all costs associated with the subproject.

39. For each of the subprojects where a Request for Proposal (RFP) will be issued during contract implementation, the consultant shall include a minimum of two and maximum of three CVs of experts that may be deployed as team leader for the subproject(s).

G. Evaluation of Proposals

40. The evaluation of proposals will follow the evaluation criteria provided in the RFP. The approach and methodology will consider both how the consultant envisages the use of the core

[1] Republic of the Philippines Bureau of Internal Revenue. https://www.bir.gov.ph/index.php/tax-code.

team as well as the responses to the propositions/subprojects included in this RFP. Furthermore, in the evaluation of the Quality of Methodology, Work Program, and Personnel Schedule, consideration will be given on whether the overall team composition (key and non-key experts) is appropriate to meet the TOR and how it matches the proposed methodology. The extent by which proposed key and non-key experts are full time staff of the consultant will also influence the evaluation of the Quality of Methodology, Work Program and Personnel Schedule. The qualification of the firm will, in addition to previous experiences on similar projects, take into consideration the CVs provided for potential team leader/s of subsequent sub-project/s.

Outline Terms of Reference: Consultancy Services for Feasibility Study, Conceptual Design and Tender Evaluation support for Manila MRT Line 4

A. Objective, Scope, and Implementation Arrangements

I. Background

1. The Line 4 Project is a proposed transit system intended to serve the eastern side of Metro Manila including the highly populated areas of the province of Rizal. It is approximately 15.56 km with 11 stations and 2 provisional stations (future). The system will start at *N. Domingo Station* near the intersection of Granada Street and N. Domingo in Quezon City close to the LRT Line 2, and end at *Taytay Station* at the intersection of Taytay Diversion Road and Manila East Road near the Taytay Public Market. An overview of the project alignment with stations is shown below. A large volume of the population living in the eastern side of Metro Manila and Rizal Province work in the Central Business Districts (CBDs) within Metro Manila, requiring daily commute to and from their places of work. The project aims to reduce the travel time, enhance connectivity to the existing railway systems and improve accessibility within the area, thereby increasing the level of productivity of the people and affected businesses.

II. Objective.

2. The main objective is to prepare the railway project ready for investment and implementation by completing feasibility studies, detailed engineering, safeguards planning documents, and bidding documents. All designs prepared under this project shall enable future electric operation of the railway network. The prepared projects and/or components shall be designed in a modular way with a clear prioritization of components to schedule implementation in accordance with financial resources.

3. Mainly Consultant shall perform but not limited to the following tasks for the above-mentioned work components:

(i) Feasibility study along with social and environmental study:

- (a) Collect all necessary information of existing, ongoing and future planned development works of government and private sector in & around the project site. To review all related documents available. To examine all existing infrastructure and facilities. To consult all relevant agencies/stakeholders.
- (b) Define alignment & layouts, scope of work, technical aspects & design parameter.
- (c) Define phasing of construction, resolve interfacing issues, train operation & signaling system and prepare detailed work schedule.
- (d) Identify rolling stock maintenance requirements. Assess demand of rolling stock based on traffic forecast and prepare Rolling stock demand analysis report.
- (e) Carry out topographical survey, option analysis, geo-technical investigation, traffic survey & forecast, technical viability, economical & financial analysis, land market survey, social and environmental study.
- (f) Prepare Feasibility study report, which will contain main report with all technical details along with drawings, cost estimate, Resettlement Plan

(RP), Land Acquisition Plan (LAP), Environment Management Plan (EMP), Hydrological & Morphological report and other required documents.

(ii) Conceptual design:
- (a) Conduct detailed investigation, update social & environmental findings.
- (b) Prepare conceptual design report along with conceptual design drawings and layouts.
- (c) Update IRR, RP, EMP, LAP and other relevant documents based on detailed design.
- (d) Prepare Bid Documents with detailed specifications & BOQ, detailed cost estimate as per BOQ and detailed Bid evaluation Criteria.

(iii) Tendering services:
- (a) Provide tendering services for the tenders.

III. Scope

4. The scope of this proposed consultancy services would be to prepare feasibility study, detailed engineering design, safeguard planning documents, and bidding documents for MRT 4 Manila railway project.

5. The Consultant shall be responsible for project management and overall coordination and integration of the entrusted feasibility study and design works in close cooperation with DOTr. The responsibilities also include standardization of design, quality management and quality assurance for all stages in the design process and compliance of the works with all applicable codes, rules and processes of the Government of Philippines, DOTr and ADB. The specific responsibilities for project management, design coordination and quality assurance are as follows but not limited to:

(i) Project management and coordination. The Consultant shall prepare detailed task schedule during inception and follow the schedule; follow-up on internal and external deliverables and approvals; closely monitor and coordinate survey & investigations to be conducted by third parties and verify their reports.

(ii) Establish design standards and approval procedures. The Consultant shall review and where necessary, revise or supplement in close cooperation with DOTr design criteria, standard designs and drawings, cost estimate, standard specifications, codes etc. applicable the project. Consultant shall understand the approval process within DOTr, the Government and ADB and take necessary action accordingly. Consultant shall immediately inform DOTr if any agreed or approved scope of work/findings/issue/design/drawings/ specification/cost estimate etc. needed to be changed with proper justification.

(iii) Quality control and quality assurance. Establish and enforce quality control and quality assurance system for all design steps and deliverables.

IV. Implementation Arrangements.

6. The Ministry of Transport is the executing agency for the railway component of the Transport Project. DOTR will implement the railway component through its Project Management Unit. A steering committee chaired by the Undersecretary of DOTr will oversee and guide the implementation. DOTr has established a project management unit to engage the consultants, manage contracts, review consultant’s reports and provide technical requirements as required.

B. Detailed Tasks of the Assignment

1. Technical Feasibility

(i) Collect and review all available relevant studies, reports, materials, documents, and information including findings from the Line 4 Feasibility Study.

(ii) Collect all necessary information of existing, ongoing and future planned development works of government and private sector in and around the project site and consult all relevant agencies/stakeholders. Take all findings into consideration in the study. Support the client in carrying out continuous coordination and consultations with all relevant stakeholders.

(iii) Examine all existing infrastructure, operational facilities, rolling stock maintenance facilities, Infrastructure, line capacity and business opportunities and make specific recommendations.

(iv) Finalize detailed scope of work, technical aspects & design parameter of all components/projects in consultation with DOTr and develop new design standard, e.g., based on new rolling stock and operational procedures for METRO trains, railway electrification, etc. Develop design standards for all relevant track components, bridges, stations, signaling and telecom (Including Train Control Center), rolling stock and workshops that will enable railway electrification with. In addition, develop maintenance standards by considering existing maintenance practices in the Philippines and by considering the needs of the new systems.

(v) Conduct Traction Power Supply Simulation for the MRT 4 system.

(vi) Calculate the power demand for the electric trains based on traffic forecast and proposed operation program considering also degraded operation and emergency operation and power demand in case of partial failures of the power supply system; define feeding points and capacity of the substations; develop a layout of feeding lines from the national grid that minimizes the risk of total power failure in case of planned blockage, e.g., due to scheduled maintenance or failure of individual supply lines in the national grid.

(vii) Consider effects of electromagnetic compatibility between the future railway electrification and signaling and telecom system, as well as external systems such as power lines, pipes, pipelines or communications networks and define minimum safety distances to avoid interference.

(viii) Define requirements on the track structure to support return current to the traction power substations and requirements on linkage of tracks and bonding, installation of CWR and insulated rail joints, etc.

(ix) Assess the need and justification of the proposed components/projects for railway improvement in the Manila Region. Assess probable effects upon project implementation including direct and indirect effects. Assess benefits of the proposed project, not only in terms of financial or economical, but also in terms of safety, environmental impacts, transportation and travel costs, poverty reduction, enhancement of trade and commercial activities likely to be created as an outcome of all the components.

(x) Identify the various technical solutions and various options for implementing all the components involving construction of tracks and bridges including signaling, rolling stock (conventional or monorail), telecom and operational facilities such as stations areas and location of stations, depot area and location of depot, etc. with a view to identify the most suitable solution. Carryout survey and necessary investigations

covering surrounding areas of each option for option analysis and to finalize the most suitable solution.

(xi) Seriously consider the capacity and safety issue in operating monorail and conventional trains.

(xii) Carryout detailed topographical survey. The topographic works have to be performed in relation to the required accuracy using satellite base survey equipment (DGPS, data logger & total station) that can be used for detailed design and construction.

(xiii) Prepare topographic maps at suitable scale following international standards, which would give a good definition of all the necessary details for good approximation concerning earthwork quantities to avoid further problems during construction.

(xiv) Collect data on planned and existing utilities in the project area and incorporate the information in the topographical maps.

(xv) Finalize alignment and layouts duly considering the topography, land formation, commercial aspects, economical and safeguard considerations, existing infrastructures of the area, ongoing and future development plan and schemes of both the government and private sectors in the area. Drafts are to be consulted and presented to DOTr before finalization. Finalize 'Construction Right of Way' (CROW) in the final alignment including land required temporary for railway construction and access to the site, camp-sites or quarries etc. Scale of alignment design drawings shall be or more detailed as appropriate at selected critical locations.

(xvi) Carryout detailed traffic, social, environmental, hydrological and other engineering survey and detailed soil, hydrological & morphological, environmental investigations on the finalized alignment and layouts. Identify the need for additional survey/investigations for detailed design.

(xvii) Analyze the existing traffic of various modes of transports. Assess the effects of the project over other modes of transportation. Assess detailed traffic forecasts for passenger traffic for all the components/projects with due consideration of other modes of transport, other ongoing and future development plans for other modes of transport such as Light Rail and Monorail, etc., bus service improvements and private sectors investments.

(xviii) Design facilities for multimodal connectivity of the railway with other public and individual modes of transport, suggest location for bus terminals, taxi stands, parking lots for cars, motorbikes and bikes, etc. Coordinate the design with concerned stakeholders including local governments.

(xix) Recommend areas for commercial development in the stations such as advertising and for supporting establishments such as coffee shops, kiosks, food stores, restaurants, bookshops, convenience stores etc. depending on the size and category of stations and the commercial functions available in the station environment.

(xx) Review the access from the road level to the Stations, calculate the number and dimension of stairs, ramps, elevators and/or escalators required for operation of the railway service, for degraded operation and for emergency evacuation. Ensure access to all stations including supporting functions such as ticket offices, waiting rooms, toilets, etc. for elderly-children-women and disabled persons.

(xxi) Review the location and status of existing bridges over the railway, evaluate bridge condition and remaining economic lifespan, recommend design options on how to operate the railway with the existing bridges, considering future railway and rolling stock design, railway electrification, etc.

(xxii) Identify the scope of work to establish computer-based signaling and Interlocking system and optical fiber based telecommunication system with radio communication to Train Crew, Operation, Maintenance and Security Personnel and centralized train control (CTC) system in all the components/projects. Interconnection and interoperability with Electric Control Center also need to be considered. The CTC shall also include facilities for passenger information system, public address system and safety and security monitoring.

(xxiii) Finalize the phasing of construction considering work plan, interfacing, railway operation and signaling issues. The Consultant shall make specific recommendation to resolve interfacing issues.

(xxiv) Develop an operation concept during and after construction of the proposed project.

(xxv) Finalize procurement packages and frame suitable investment projects covering all the components mentioned. Consultant may suggest inclusion of additional component, which might be essential to achieve the full benefit of all the components.

(xxvi) Conduct mathematical hydrodynamic modeling study for major bridges having waterway 100m and above to establish hydrological parameters for fixation of the location of bridge, formation level of the railway track identifying the highest flood level, catchments area at bridge openings, identify scour & erosion in the vicinity of major bridges and river banks and design river training works and protection works.

(xxvii) Conduct an in-depth study covering the surrounding area for fixation of formation level of the proposed structures; recommend proper drainage system identifying the outfall of the drainage system.

(xxviii) Examine existing rolling stock day-to-day maintenance facilities and assess scope of works to establish modern, improved rolling stock maintenance preferably for modern electric multiple units and future electrical multiple units.

(xxix) Assess operation and maintenance (O&M) personnel and other resources/facilities requirements for operation and maintenance works for all components. Prepare capacity building plan, propose training facilities and the maintenance tools and equipment.

(xxx) The study should also include conceptual engineering design and layout plan for all necessary railway tracks, stations and depot, signaling and telecom, bridges, over pass/fly over/underpass, other structure, residential and functional buildings, cuts and other facilities. Prepare cost estimates for proposed project, showing foreign and local currencies, and tax and duty elements, etc.

(xxxi) Review and update Feasibility study report, which will contain main report with detailed scope of work, all technical aspects, drawings/layouts, cost estimate and Resettlement Plan (RP), Land Acquisition Plan (LAP), Environment Management Plan (EMP), Operational plan, Hydrological & Morphological report and other required documents.

(xxxii) Prepare manuals and rulebooks and additional documentation required according to modern technologies, electric train operation, modern signaling system, etc.

(xxxiii) Prepare time scheduling, crew management and train controlling practices.

(xxxiv) Conduct train driving time simulation for the MRT 4 System.

(xxxv) Prepare maintenance standards and practices by considering the technologies that will be utilized in the project and by considering the allowable tolerances.

(xxxvi) Review existing practices of occupational safety and standards and prepare safety code for DOTr.

(xxxvii) The consultant shall prepare a detailed analysis with various options in regards to the alignment along the vicinity of EDSA, location of stations, location of depot, bridges including rail alignment and C5 intersections. The options shall be submitted to DOTr for final decision.

(xxxviii) The Consultant shall give various options in terms of implementation of the Project. The options shall include different awards of contracts to the Contractor(s) with all pro and cons to advise DOTr, which implementation is most suitable for DOTr.

2. Economic and Financial Assessment

(i) Prepare an economic analysis of the proposed priority projects. The economic analysis should follow ADB's guidelines for the economic analysis of projects.

(ii) Provide all analysis and calculations of costs and benefits of the project to the executing agency. Assess benefits of the proposed rail line, not only in financial terms or economical, but also in terms of safety, environmental impacts, time savings, savings of transportation and travel costs, poverty reduction, increase of life standard and enhancement of trade and commercial activities likely to be created as an outcome of the proposed projects.

(iii) Calculate the economic internal rate of return (EIRR) for the railway project. Undertake sensitivity analysis on the risk factor basis for various scenarios such as changes to the capacity costs, operation and maintenance costs, traffic volume, and construction period, etc.

(iv) Conduct willingness-to-pay and other relevant survey. In consultation with DOTr, propose appropriate fare. Calculate the financial internal rate of return (FIRR) on the same basis of EIRR calculation.

(v) Estimate the required budget for appropriate operation and maintenance of the project. Assess the financial sustainability by comparing the required budget with the current budget allocation, and make recommendations as appropriate.

(vi) Prepare relevant chapters and appendixes of the feasibility study report on economic and financial assessment.

(vii) Develop a monitoring and evaluation framework in accordance with ADB's Guidelines for Preparing a Design and Monitoring Framework. Include in the framework appropriate indicators with baseline data and targets.

(viii) Study existing railway fare structure and recommend suitable formula for periodical revision of railway fares. Identify appropriate benchmark indicators for fare adjustments and institutional arrangements to carry out the periodic fare adjustments.

3. Poverty and Social Assessment

7. Prepare a Poverty and Social Assessment (PSA). The PSA will provide a socio-economic baseline of the project area; include a stakeholder analysis; identify social risks/impacts as well as benefits along with measures to mitigate impacts and enhance social benefits of the project. The PSA actions will be set out succinctly in a summary matrix with responsible agencies, timing and required resources. The PSA will also include an analysis of public transport usage and needs by gender and vulnerable people intended to aid in the assessment the project's contribution to poverty alleviation and ways in which such benefits could be enhanced. The assessment of impacts, mitigation and benefit enhancing measures will be prepared in coordination with the consultant team and in consultation with key government stakeholders. The consultant is also to be guided by ADB's Handbook on Poverty and Social Analysis (2012). The

PSA will be prepared to a standard acceptable to ADB. Preparation of the PSA will take on board the following matters:

(i) Assessment of the potential poverty alleviation benefits of the project is to consider affordability, current public transportation usage of public transportation (including light rail), as well as accessibility constraints to employment and social services.

(ii) Preparation of indicator for baseline data is to be undertaken in coordination with efforts to prepare M&E indicators for the project. Poverty alleviation related indicators (including proxy indicators) to be used in the M&E baseline survey are to take in to consideration data that is readily available.

(iii) As part of the PSA proposed actions, propose design features and measures for inclusion in the follow-on investments (including the need for any technical assistance) to address mitigation or benefit enhancing measures identified in the analysis above.

(iv) Assessment of project impacts will also consider impacts on current public transport providers (such as jeepneys) in collaboration with the project consultant team. The assessment will include discussions (such as key informant interviews) with transport providers.

(v) Preparation of the PSA will be based on available secondary data, consultations with key informants (including local government and key project stakeholders), in-depth interviews with a sample of local residents and public transport users as well as information obtained through public consultation meetings. Household-based surveys to prepare the PSA are not envisioned and the consultant should collaborate work with public consultation activities with other consultants working on design, resettlement and environment; and

(vi) The PSA should be prepared sufficiently early in the feasibly study phase so as to provide an opportunity to feed in to project design considerations.

8. Prepare a consultation and participation plan (CPP). The CPP will be based on a stakeholder analysis prepared in the PSA. The CPP will provide a narrative guide on how stakeholder are to be consulted and participate. The CPP will also set out a guide, in table format, the consultation activities to take place throughout the project cycle, to include topics, means of communication and responsible agencies. The CPP is to incorporate feature to promote inclusiveness and equitable participation. The CPP is to cover topics likely to be of concern to project stakeholders and public. The CPP is to be prepared in coordination with other project consultants and to be of acceptable standard to ADB.

9. Prepare a Summary Poverty Reduction and Social Strategy (SPRSS). The consultant will prepare this in the standard three-page format provided by ADB and in accordance with the standard guidance note accompanying the SPRSS template.

V. Land Acquisition and Resettlement Planning

1. Project Preparation Stage.

10. The project modality will be a Multi-Tranche Facility (MFF). Social safeguards due diligence will require the preparation of a Resettlement Framework and preparation of Resettlement Plans for each tranche project.

11. For each project identified during the feasibility stage, carry out a screening of involuntary resettlement and indigenous peoples' impact in accordance with the ADB's Safeguard Policy

Statement 2009 (SPS). Identify whether the project is likely to trigger Involuntary Resettlement Safeguards or Indigenous Peoples policy requirements. Estimate the scope, nature and types of impacts sufficient to assess the likely safeguards categories of the identified project. Prepare the checklist for involuntary resettlement and indigenous people screening using the ADB provided template.

12. The screening exercise will also include a due diligence of past social impacts, vis-a-vis, if land acquisition or land clearing has been accomplished in anticipation of the project. If determined that land has been acquired or cleared in anticipation of ADB financing, then the scope of the resettlement plan scope will need to incorporate such impacts.

13. Conduct due diligences on any legacy issues/cumulative impacts/adjacent projects that might affect the preparation and implementation of the resettlement plan to be prepared.

14. Prepare a draft resettlement framework (RF) that meets the Government and ADB policy compliance standards. The RF should define categories for impact, eligibility of affected people for compensation and provide an entitlement matrix covering compensation and other assistance for all types of impacts. The RF should provide the methodology for the calculation of compensations based on replacement cost to fully replace the asset. The entitlement matrix should focus on assistance provided to non-titleholders in the urban context. The RF should be based on a consultative process with the executing agency and ADB and draw from broad-level consultations with the communities likely to be affected by the subprojects. The RF is to be consistent with the Government's legal requirements and SPS (2009) and acceptable to DOTr and ADB.

15. For each proposed tranche project to be prepared during the feasibility study stage, prepare a resettlement plan. The resettlement plan is to be consistent with the Government's legal requirements[2] and SPS and acceptable to DOTr and ADB.[3] If land acquisition or land clearing was undertaken in anticipation of ADB financing, assess if there are gaps with SPS requirements or pending actions and incorporate any required corrective actions in the resettlement plan.

16. Based on engineering concept design (or similar), assess to scope of impacts and provide input in to the engineering design on options to minimize involuntary resettlement impacts. The assessment methodology should include consultations with key informants, including local government (barangay, municipal, national).

17. Identify involuntary resettlement impacts to be caused by the project design based on the basic engineering design. Resettlement impacts are those directly attributable to the project design, as well as other induced impacts directly attributable to the project such as restricted access to housing, livelihoods, public access, land required for resettlement of persons displaced by the project, land required for relocation of utilities, redesign of sidewalks/roads to accommodate project infrastructure, land required for related facilities to the main project, etc.

[2]Including the DOTr Right of Way and Site Acquisition Manual (ROWSAM).

[3]In the case of differences between Government legal requirements and SPS, resettlement plan preparation will follow the agreed gap filling measures set out in the RF.

18. Undertake a census and an inventory of losses (IOL) survey covering 100% of identified affected persons.[4] The census and IOL should collect key socio-economic information, including severity of impact on housing and livelihood, vulnerability, household composition and legal status of their tenure in the affected properties (e.g. titled, non-titled, informal settler). The census and IOL will be undertaken using a household survey form and quantitative measurement of losses.[5] Affected properties are to be geo-tagged and be presented in map in electronic format for identification. Identify public utilities required to be relocated and confirm implementation arrangements and indicate how relocation of public utilities is to be managed under the project.

19. Establish a cut-off date for eligibility criteria for non-title holders and ensure and document that it has been publicly disseminated. The consultant will also prepare photographic/video imagery of the entire alignment right of way, including aerial (such as drone imagery) as well as street level.

20. Undertake a socio-economic study of the project affected area based on secondary information and household level socio-economic survey (SES). The SES will be based on sample sizes of at least 10% of all affected households and 20% of severely affected households.[6] Analysis of the SES data should serve to develop a baseline against which to later assess changes in household living standards as well as to identify relevant socio-economic characteristics of the affected population to inform the design of mitigation measures. The SES should also include a perception survey related to key concerns and attitudes towards the project.[7]

21. Prepare a detailed database covering information collected through the surveys such as family members, their earnings & expenditure, affiliation with any government programs, detailed inventory of assets and loss, replacement value of loss, entitlement to compensations, willingness to participate in income restoration program and interested training etc. as per entitlement matrix.

22. Assess the resettlement needs of displaced persons, with particular attention to vulnerable households such as informal settlers. Prepare a resettlement strategy that minimizes their dislocation and provides them viable access to social services and livelihood opportunities. Assist DOTr in liaising with key shelter agencies (KSA) in identifying potential relocation sites, if relocation is required. Work closely with KSAs and EA to prepare detailed implementation plans. Identify resource requirements, potential constraints and solutions to ensure timely implementation of resettlement strategies.

23. Assist DOTr to prepare a MOA with the KSA which sets out their responsibilities in accordance with the project's resettlement requirements, applicable entitlements and eligibility considerations as well as resettlement strategy as agreed between DOTr and ADB.

24. Assist DOTr by drafting letters, MOAs, other relevant communication and presentation material.

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[4]Depending on the impacts and number of households to be surveyed, sub-contracting the survey works may be required. This will be confirmed by ADB in consultation with the consultant. In the event of sub-contracting, the consultant will prepare the TOR and monitor the quality of the work performed.

[5] The survey instrument will be prepared by the consultant and be agreed by ADB prior to the conduct of the survey.

[6]The sample size will be discussed and agreed with ADB prior to undertaking the SES. If the total affected population size is relatively small, then the sample size would need to be increased. The survey instrument will be prepared by the consultant and agreed by ADB prior to the conduct of the survey.

[7]Footnote 3.

25. Prepare an income and livelihood restoration strategy, supported by adequate budget, to help APs improve, or at least restore, their incomes and livelihoods. Identify specific measures for the affected poor and other vulnerable households. The strategy should be based on consultations with service providers and APs likely to eligible for assistance.

26. Conduct meaningful consultation throughout RP preparation. The consultations will include:

(i) Public consultations prior to and following the conduct of resettlement surveys to provide information about the project, project preparation activities, anticipated impacts, results of surveys, planned mitigation approaches;
(ii) Separate consultations with persons required to relocate regarding resettlement preferences and constraints;
(iii) Separate consultations with persons whose livelihoods will be affected on suitable and preferred restoration measures;
(iv) Consultations with other relevant stakeholder such as local authorities and civil society;
(v) Ensure that the consultation process is inclusive. Meetings are to be property recorded such as minutes. Information on attendance for public consultation meetings such be sex disaggregated. Prepare a plan for future consultation and disclosure activities (during RP updating and implementation), including target audience, timing and responsibilities;
(vi) Ensure that the Resettlement Plan is effectively disclosed to project stakeholders and affected people as per requirements of the SPS;
(vii) In consultation with DOTr, local government, the project team design a grievance redress mechanism (GRM). Consultations should also be conducted with the project teams of other DOTr projects to assess what lessons can be applied from GRM operations in their other projects to design of the proposed project's GRM;
(viii) Undertake an assessment of the legal and policy framework.[8] Prepare a matrix of gap-filling measures to address gaps between government legal requirements and ADB policy relevant to the project context. Based on analysis of the anticipated project impacts, prepare an entitlement matrix to mitigate project impacts in consultation with DOTr and in accordance with ADB SPS requirements;
(ix) Manage the conduct of a replacement cost study (RCS) to be conducted by a sub-contracted entity that is suitably qualified. Based on the results of the RCS and other planned mitigation measures, prepare a budget for the RP and indicate source of funding and flow of finances;
(x) Prepare detailed resettlement implementation schedule and phasing in accordance with phasing of construction work;
(xi) Prepare the institutional framework for RP implementation. For government agencies, the institutional framework in the Resettlement Plan should provide sufficient detail about the role in the RP implementation, their ongoing roles in those areas, and coordination mechanism. The institutional framework should be based on consultations with those institutions and include an assessment of their capacity. Prepare TOR and cost estimate for any external agencies/entities involved in implementation;
(xii) Prepare the monitoring framework. Indicate responsibilities and arrangements for internal monitoring and prepare a sample internal monitoring report template. Prepare the TOR and cost estimate for an external monitor as well as indicative

[8]The legal and policy assessment is to include the DOTr Right of Way and Site Acquisition (ROWSA) Manual.

monitoring indicators. Provide inputs to ADB required documents including the Report and Recommendation of the President (RRP), the Summary Poverty Reduction and Social Strategy (SPRSS) and other documents as required. Assist in mission/field visit preparations when required; and

(xiii) Deliverables:
  (a) Categorization Forms (Involuntary Resettlement and Indigenous Peoples);
  (b) Resettlement Framework;
  (c) Draft Resettlement Plan;
  (d) Due Diligence Report (if required);
  (e) Draft Memorandum of Agreement (MOA); and
  (f) Any other relevant documentation

2. Detailed Design Stage

27. The main task of the consultant team will be to update the RP based on the detailed engineering design (DED).

(i) Update the information of involuntary resettlement impacts by undertaking a detailed measurement survey (DMS) and updated census based on the detailed engineering design as well as any other identifiable involuntary resettlement impacts directly attributable to the project. Prepare the TOR and manage the surveying team if the surveying work is subcontracted.

(ii) The DMS survey is to record and quantify losses (property, income sources and income), severity of losses for main structures and income generating resources, legal ownership/tenure status of affected persons. The census will collect household level data, including key bio-data such as household composition, vulnerability, ethnicity, combined household income as well as information on individual household members (age, sex, employment status/livelihoods, location of employment, income, education level and vocational skills). Affected properties are to be geo-tagged and be presented in map in electronic format for identification. For businesses, the DMS and census will include information on business categorization using government criteria on capitalization (or a suitable proxy) and number of employees, in addition to their losses.

(iii) The consultants will also assist DOTr to validate DMS and census data and confirm eligibility type of affected persons. Update DMS and census records following the validation process.

(iv) Based on the updated impacts data, review the entitlement matrix. As needed, revise the entitlement matrix to ensure that all categories of impacts and eligibility are covered and that the entitlements are appropriate to restore living conditions. Ensure that all the forms of entitlements are consistent with the requirements of the SPS. Determine unit rates for allowances in consultation with DOTr.

(v) Prepare a detailed resettlement strategy for inclusion in the RP.

(vi) Assist DOTr to finalize a MOA with the KSA which sets out their responsibilities in accordance with the project's resettlement requirements, applicable entitlements and eligibility considerations as well as resettlement strategy as agreed between DOTr and ADB;

(vii) Confirm eligibility of APs entitled to relocation to socialized housing according to entitlement matrix based on validated DMS information;

(viii) Conduct consultations with APs eligible for assisted resettlement to assess their needs and preferences for resettlement. Guide and assist DOTr and KSAs to conduct subsequent consultations with APs eligible for assisted resettlement on identification and selection of resettlement site locations and development needs.

(ix) Together with KSA and DOTr prepare a realistic schedule and budget requirements for development of resettlement site(s);
(x) Prepare the Resettlement and Relocation chapter of the Resettlement Plan that includes confirmed resettlement site(s) and other required resettlement solutions that are acceptable to the APs, realistic schedule and budget;
(xi) Update the income and livelihood restoration strategy and prepare a livelihood restoration plan for inclusion in the RP. The livelihood restoration plan should present a concrete, workable program of activities based on an assessment of prospects for viable outcomes as well as AP needs and preferences;
(xii) Identify and record APs (households and individuals) and businesses whose livelihoods will be severely affected by the project involuntary resettlement impacts. The information will include severity of impact, intentions for livelihood restoration and preferences of forms of livelihood restoration assistance. This information is to be maintained in a database;
(xiii) Together with the engineering team, Identify skills needed for working on the construction of the ensuing project and include in the livelihood restoration plan. Include information on where and how to obtain said skills and the length it will take to acquire necessary skills to work on the construction;
(xiv) Collect information on available vocational training and vocation enhancement programs (including apprenticeships programs) and in reasonable commuting distance for APs. The information is to include training providers, training prerequisites and course length required to develop vocational skill levels useable in the work place or to establish independent livelihood (e.g. enterprise). Include other activities as needed to promote the success of the livelihood restoration program and confirm service delivery arrangements for these activities;
(xv) Conduct a labor market assessment (LMA). The purpose of the LMA is to inform the design of livelihood restoration activities and to provide information to APs with affected livelihoods. The LMA preparation will include collection of information on job categories and vocational skills in demand in the project area and surrounding areas that are in reasonable commuting distance as well as viable entrepreneurial activities in the project area. The LMA will be prepared based on secondary data reports and key informant interviews with industry practitioners and relevant local government authorities such as Public Employment Services Office;
(xvi) Through consultations with APs and information gathered from APs through focus group discussions and surveys, assess APs preferences of activities to finalize activities to be included in the livelihood restoration program;
(xvii) Assist DOTr to confirm implementation arrangements with government service providers, such as through MOAs, and prepare TORs for engagement of external service providers.
(xviii) Prepare a budget and confirmed implementation arrangements.

28. Conduct meaningful consultation throughout RP updating. The consultations will include
(i) Public consultations prior to and following the conduct of resettlement surveys to provide information about the project, project preparation activities, anticipated impacts, results of surveys, planned mitigation approaches;
(ii) Separate consultations with persons required to relocate regarding resettlement preferences and constraints;
(iii) Separate consultations with persons whose livelihoods will be affected on suitable and preferred restoration measures;
(iv) Consultations with other relevant stakeholder such as local authorities and civil society

(v) Ensure that the consultation process is inclusive. Meetings are to be properly recorded such as minutes and pictures. Information on attendance for public consultation meetings need to be sex-disaggregated. Update the RP consultation plan regularly.
(vi) Ensure that the Resettlement Plan is effectively disclosed to project stakeholders and affected people as per requirements of the SPS.
(vii) Assist DOTr to arrange for the conduct of the replacement cost study to be undertaken by a qualified appraiser and update the RP budget. The RP budget is to cover direct costs (compensation for property and income losses, transitional allowances, resettlement needs, livelihood restoration), implementation costs, external monitoring and contingency. Unit rates for compensation are to be based on replacement cost.
(viii) Update the RP institutional framework and implementation schedule.
(ix) Deliverables:
    (a) Update of Resettlement Framework (if necessary);
    (b) Updated Resettlement Plan(s) based on DED;
    (c) Due Diligence Reports (if required);
    (d) Draft Memorandum of Agreement (MOA); and
    (e) Any other relevant documentation.

3. Environmental and Climate Change Risk Assessment

29. Carry out an environmental assessment of the project in accordance with ADB's Safeguard Policy Statement 2009 (SPS), and the government's environmental regulations and policies.

30. Classify the project in accordance with the environmental impact assessment requirements under the Central Environmental Authority, Ministry of Environment and Forests and ADB's screening checklist for environmental categorization according to the SPS.

31. Depending on the classifications, prepare IEE as per relevant guidelines of CEA and ADB, and if EIA is required, prepare TOR that is acceptable to CEA. In preparing the IEE and/or EIA, a minimum of the following issues must be covered:

(i) Adequate baseline data representing the environmental conditions of the project site must be collected on physical (air, noise, surface and ground water, soil), ecological (flora, fauna, protected areas) and socio-economic (physical cultural resources, heritage sites, etc.) environmental components;
(ii) Potential impacts on biodiversity including modified, natural, critical habitat (as defined in the SPS) and protected areas and necessary measures to minimize, mitigate, and offset impacts. If the project area has any critical or natural habitat or any critically endangered/locally protected species, detailed back ground information on such areas and species must be provided and the significance of impact clearly defined. Where necessary, mitigation may include physical measures such as design and construction of wildlife overpass or underpass, linkage of rail signaling systems to detection of wildlife on the rail corridor, implementation of biodiversity conservation activities and other innovative measures. Overall, there should be no net loss of biodiversity as a result of the project;
(iii) Potential waste issues including hazardous materials and wastes and appropriate measures for their disposal, treatment, and other forms of management;

(iv) Potential impacts on ambient air and water quality, noise levels and soil and recommendations for suitable mitigation measures. Impacts must be compared with the national standards and World Bank Environmental Health and Safety (WB-EHS) standards;

(v) Climate change risks for the project (such as more and stronger storm surges, sea level rise, more flooding, etc.) in consultation with the government and ADB, and recommendations for adaptation measures in the engineering design. The adaptation measures must be clearly identified and the additional costs for those measures quantified;

(vi) Quantification of greenhouse gas (GHG) emissions expected from the construction activities under the project and GHG emissions and reductions during operation of the railway lines and improved systems. If the gross operation related GHG emissions exceed 100,000 tons per annum, provide recommendations for suitable mitigation and/or offset measures;

(vii) Occupational Health Safety issues and measures for the construction workers as well as the local communities in and around the project site following the WB-EHS guidelines;

(viii) Potential impacts on physical and cultural resources including sensitive receptors (churches, schools, hospitals, etc.) and measures to avoid, minimize, or mitigate impacts. This must include modeling of air pollution, noise and vibration levels during operation stage at various distances from the edge of the rail ROW with clear identification of sensitive receptors that will be impacted due to air pollution, noise and vibration levels being higher than baseline levels or higher than the national or WB-EHS standards. For such receptors, clear mitigation measures must be provided;

(ix) Public consultations with affected people in the project area including men, women, vulnerable or indigenous groups with clear documentation on dates of meeting, issues discussed, and total number of male and female participants. Consultations must also be carried out with relevant government agencies (e.g., Forest Department, Agriculture Department, etc.);

(x) Grievance Redress Mechanism to address concerns and grievances of the APs in the course of the project cycle;

(xi) Cumulative and induced impact assessment with recommendations for mitigation measures to be implemented within the project, where feasible and for implementation by other agencies responsible for other projects;

(xii) Alternative analysis including the no project option (required only for EIA under the ADB SPS;

(xiii) Assessment of the institutional set up and capacity of the EA for meeting environment safeguard requirements of the government as well as ADB. Institutional and capacity needs, if any must be identified and planned for with adequate budge provisions;

(xiv) Prepare the IEE and EIA reports to fulfill the requirements of the government and ADB;

(xiv) Prepare an Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMOP) to implement and monitor the mitigation measures with clear information on costs, time frame, responsible agencies, monitoring methods and monitoring indicators and targets; and

(xv) Incorporate into the EIA/IEE report including EMPs/APs, feedback from all relevant stakeholders including the EA, ADB, and others. Prepare an Environment Assessment and Review Framework (EARF), if necessary.

32. During the feasibility study stage, the outputs will be complete IEE or EIA reports and EARF, as necessary fulfilling requirements of both the government and the ADB SPS, including as many site-specific details as possible. The IEE or EIA prepared during the feasibility study stage must provide clear recommendations for follow-up activities required during the conceptual design stage. Recommendations may include but not be limited to:

(i) updating the EMP to provide more site specific details or other updates;
(ii) providing more detailed or updated information and analysis on location, expected impact and mitigation measures on sensitive receptors; (c) updating the number of trees required for removal;
(iii) conducting air and noise impact modeling; and
(iv) other updates in the reports based on design updates. The output of the detailed design stage will be the final IEE and/or EIA reports and EARF, as necessary fulfilling requirements of both the government and the ADB SPS.

4. Conceptual Engineering Design

(i) Conduct additional field survey and soil, hydrological, seismic, geometric features, type and condition of drainage structures and foundation investigations required for detailed design along the selected alignment;
(ii) Conduct hydrological and morphological studies for major bridges having spanned more than 100 meters and separate reports have to be submitted to the client;
(iii) Conceptual engineering design have to be done in accordance with the design codes/guidelines/manuals of DOTr, neighboring countries and International codes based on the findings of investigations and feasibility study, recommendations of safeguard policy study and universal design for the elderly & disabled persons. All bridges and sub-structures have to be designed in accordance with related standards for future electric traction lines. The alignment design shall also include all adjustments at third-party infrastructure such as roads, utilities, power transmission lines, etc. required to implement the project. The scale of alignment design drawings shall be or more detailed as appropriate at selected critical locations;
(iv) Conceptual design for the railway project shall be based on the updated conceptual design of the feasibility study and results from additional investigations conducted. Detailed alignment design and layout plan shall be prepared for the proposed route alignment selected in the Feasibility Study;
(v) Conceptual design and drawings have to include universal access for the elderly & disabled persons such as access to the station building, parking area and platforms by ramps and/or elevators. Detailed design and drawings should also include gender sensitive design in all station buildings, such as separate ticket counters, waiting areas/rooms, and toilets for women, etc.;
(vi) Prepare key map for all stations proposed in the project showing all existing, proposed dismantling works and proposed new structures and station layout;
(vii) Design multimodal facilities in the station areas as well as areas for commercial development as recommended in the feasibility study;
(viii) Prepare detailed technical specifications for each work item, taking into account relevant proven specifications in use in the Philippines and elsewhere for similar works;

(ix) The consultant shall also be required to take into consideration the findings and recommendations of social and environmental studies carried out by separate consultants during preparation of conceptual design and cost estimates. Reviewing designs against anticipated social impacts and do amendments if necessary, should also be done with consultation of DOTr;

(x) Update safeguard related documents such as RP, EIA and LAP, indigenous people plan, etc. based on the conceptual design. Facilitate effective coordination and lines of communication between ADB and relevant government agencies and line departments, organizations, and individuals implementing safeguard aspects, including obtaining government clearances;

(xi) Re-assess benefits and capital costs of the proposed projects and update the economical and financial analysis based on revised cost and benefits and other findings of conceptual design;

(xii) Conceptual design for establishment of computer-based interlocking (CBI) signaling system and optical fiber based telecommunication system with radio communication for train crew etc. and centralized traffic control center (CTCC) in all the components/projects as identified in the feasibility study;

(xiii) Design the power supply system including transmission lines from the existing grid to substations and the feeder for the railway lines, sectioning in stations, depot, and on the open lines and operations control to be situated in the CTCC;

(xiv) Prepare the detailed work plan/schedule covering phasing of construction considering work plan, interfacing issues, railway operation issues, and signaling and safety issues. The plan shall also identify all additional temporary structures and facilities required for construction logistics purpose, access to the site through temporary roads and bridges or similar, storage, camp-sites etc.;

(xv) Prepare detailed operational plan for construction and after construction period. Prepare maintenance plan. Finalize operation and maintenance (O&M) personnel and other resources/facilities requirements for operation and maintenance works for all components;

(xvi) Prepare engineering design, drawings and layout plan for railway tracks, stations and depot, signaling and telecom, drains, bridges, protection works, other structure, residential and functional buildings, drainage, sanitation, electrical works, rolling stock maintenance facilities, operational and other facilities;

(xvii) Prepare conceptual design for establishment of rolling stock depots and allied facilities as identified in the feasibility study; and

(xviii) Prepare list of maintenance tools and equipment and maintenance schedules for each of the design components.

5. Cost Estimates and Bidding Documents

(i) Prepare detailed cost estimate of each of the project based on conceptual design and detailed BOQ. The Consultant shall consider the findings and recommendations of social and environmental studies and reflect those in necessary clauses in the tender documents and cost for implementation EMP, if any, are to be included in detailed in the cost estimate and BOQ. The accuracy of the BOQ shall be within +/- 10 % for all quantities based on the detailed design;

(ii) Prepare separate BOQ and bid documents of construction works as phased by the consultant based on detailed in the engineering design and detailed cost estimates following ADB's and government's guidelines for procurement;

(iii) Prepare unit rate analysis report for each items included in the cost estimate along with all background/ breakup calculation;

(iv) The cost estimate should be broken down in local and foreign currencies. Local currency costs are again to be broken down to works, equipment, and tax and duties;
(v) Prepare detailed scope of station-wise civil, E&M works, bridge wise works and their cost estimates to monitor the construction works;
(vi) Prepare and/or update technical specification for all components required in the selected projects/components to be used as Employer's Requirements in the bid documents; and
(vii) Assist the DOTr in the Bidding Process and Technical Evaluation Committees to evaluate bids

6. Procurement Assistance

(i) Prepare the procurement plan and the bidding documents for each contract package using ADB's standard bidding document for procurement of civil works.
(ii) Upon the client's request, assist the government in advertising, issuing bidding documents, responding to queries, receiving and evaluating applications, and other procurement-related activities.

C. Consultant's Inputs

Table A3.15: Required Experts

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
International				
IC01	Team Leader/ Senior Railway Specialist	• professionally qualified engineer with Bachelor degree in railway engineering or related areas with post- graduate degree in the relevant field • Min. 15 years experience • Min. 10 years in planning, preparation and design of railway systems and projects, at least 5 years as project team leader for projects of similar scale and scope	1	30
IC02	Transport Economist	• Bachelor degree in economics or engineering • Min.15 years experience • Min. 10 years of experience in economic and financial analysis, 5 years of which on transport/infrastructure projects	1	9
IC03	Rail Operation Specialist	• professionally qualified engineer with Bachelor degree in railway engineering or related areas • Min. 15 years of experience • Min. 10 years of experience in rail operation	1	12

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
IC04	Railway Alignment and Survey Engineer	• professionally qualified engineer with Bachelor degree in surveying, railway engineering or related areas • Min. 15 years experience • Min.10 years of experience in railway alignment design	1	18
IC05	Railway Track Engineer	• professionally qualified engineer with Bachelor degree in railway engineering or related areas • Min. 15 years experience • Min.10 years of experience in railway track engineering	1	15
IC06	Railway Bridge Engineer	• professionally qualified engineer with Bachelor and master degree in civil engineering • Min. 15 years experience • Min.10 years of experience in railway bridge/structure design	1	10
IC07	Station Architect	• professionally qualified architect with Bachelor degree in architecture, post-graduate degree preferred • Min. 15 years experience • Min. 10 years of experience in railway station design	1	15
IC08	Power Supply Engineer	• professionally qualified engineer with Bachelor degree in electrical engineering, post-graduate degree preferred • Min. 15 years of professional experience • Min. 10 years of experience in railway electrical engineering	1	6
IC09	Railway Electrification Engineer	• professionally qualified engineer with Bachelor degree in electrical engineering, post-graduate degree preferred • Min. 15 years of professional experience • Min. 10 years of experience in railway electrification engineering system design	1	15
IC10	Signal Engineer	• professionally qualified engineer with Bachelor degree in railway engineering, or related areas	1	10

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		• Min. 15 years experience • Min. 10 years of experience in railway signal engineering and system design		
IC11	Telecommunication Engineer	• professionally qualified engineer with Bachelor degree in telecommunication engineering • Min. 15 years experience • Min.10 years of experiences in railway telecommunication system design	1	6
IC12	Rolling Stock and Workshop Engineer	• professionally qualified engineer with Bachelor degree in railway engineering, or mechanical engineering, or related areas • Min. 15 years experience • Min. 10 years in railway rolling stock, maintenance and workshop design and operations	1	15
IC13	Environmental Specialist	• Masters degree in environment science or environmental engineering or related areas, • Min. 15 years experience • Min. 10 years in preparation/management of environment impact assessment	1	9
IC14	Social Development/Resettlement Specialist	• Masters degree in social science • Min. 15 years of professional experience • Min. 10 years of experience in social development and resettlement for infrastructure projects	2	18
IC 15	Noise and Vibration Specialist	• Masters degree in environment science or environmental engineering or related areas, • Min. 15 years experience • Min. 10 years in preparation/management of environment impact assessment	1	3
IC 16	Universal Access, Gender Development Specialist	• Masters degree • Min. 15 years experience • Min. 10 years in preparation/management of Gender Development	1	3

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
IC17	Procurement Specialist	• Bachelor degree in engineering or construction science, post-graduate degree preferred • Min. 15 years of professional experience • Min. 10 years in preparation/management of construction contracts and procurements for international bidding	1	9
IC18	ICT Specialist	• Bachelor degree in Computer System Engineering, post-graduate degree preferred • Min. 15 years of professional experience • Min. 10 years of experience in railway ICT engineering and system design	1	6
		Subtotal	**19**	**209**
National				
NC01	Deputy Team Leader/ Senior Railway Engineer	• professionally qualified engineer with Bachelor and Master degrees in civil/electrical/ mech. engineering, • Min. 15 years experience • Min. 5 years in planning, preparation and design of railway projects	1	30
NC02	Transport Financial Analyst	• Bachelor degree in finance, economics or engineering • Min. 10 years experience • Min. 8 years of experience in economic, 3 years of which on transport/infrastructure projects • CA/CPA equivalent preferred	2	20
NC03	Financial Analyst	• Bachelor degree in accounting or related areas • Min. 10 years experience • Min. 5 years of experience in financial analysis, 3 years of which on transport/infrastructure projects	2	20
NC04	Alignment and Survey Engineer	• professionally qualified engineer with Bachelor degree in railway/civil engineering, • Min. 10 years experience	2	60

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		• Min. 6 years of experience in alignment design and survey engineering		
NC05	Railway Track Engineer	• professionally qualified engineer with Bachelor degree in railway/civil engineering or related areas • Min. 10 years experience • Min. 6 years of experience in railway track engineering	2	30
NC06	Railway Bridge Engineer	• professionally qualified engineer with Bachelor degree in civil engineering, post- graduate degree preferred • Min. 10 years of professional experience • Min. 5 years of experience in bridge/structure design	2	30
NC07	Geotechnical Engineer	• professionally qualified engineer with Bachelor degree in geotechnical engineering • Min. 10 years of professional experience • Min. 5 years of experience in geotechnical engineering	3	36
NC08	Signal Engineer	• Bachelor degree in railway/ electrical/electronics engineering, or related areas • Min. 10 years of professional experience • Min. 5 years of experience in railway signal engineering	1	15
NC09	Telecommunication Engineer	• Bachelor degree in telecommunication engineering or related areas • Min. 10 years of professional experience • Min.5 years of experiences in railway telecommunication	1	9
NC10	Rolling Stock Engineer	• Bachelor degree in railway/ mechanical engineering, or related areas • Min. 10 years of professional experience • Min. 5 years in railway rolling stock.	1	9

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
NC11	Environmental Specialist	• Bachelor degree in environment science, environmental engineering or related areas, post-graduate degree preferred • Min. 8 years experience • Min. 3 years in preparation/management of environment impact assessment for transport infrastructure projects	2	48
NC12	Social/Resettlement/Gender Specialist	• Bachelor degree in social science • Min. 8 years of professional experience • Min. 3 years of experience in social development and resettlement for infrastructure projects	6	96
NC13	Noise Modeling Specialist	• Bachelor degree in environment science, environmental engineering or related areas, post-graduate degree preferred • Min. 8 years experience • Min. 3 years in preparation/management of environment impact assessment for transport infrastructure projects	1	9
NC14	Gender Development Specialist	• Bachelor degree or related areas, post-graduate degree preferred • Min. 8 years experience • Min. 3 years in preparation/management of environment impact assessment for transport infrastructure projects	1	6
NC15	Embankment Engineer	• professionally qualified engineer with Bachelor degree in civil engineering • Min. 8 years of professional experience • Min. 3 years in embankment design	2	20
NC16	Electrical Engineer	• Bachelor degree in electrical engineering, post-graduate degree preferred • Min. 10 years of professional experience	2	20

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
NC17	Procurement Specialist	• Bachelor degree in engineering, post-graduate degree preferred • Min. 10 years of professional experience • Min. 5 years in preparation/management of construction contracts and procurements for international bidding	1	12
NC18	Quantity Surveyor	• Bachelor degree in civil engineering, quantity surveying or other relevant subject • Min. 5 years of professional experience • Min. 3 years as a quantity surveyor in transport projects.	3	90
NC19	Structural Engineer	• professionally qualified engineer with Bachelor degree in Structural/civil Engineering • Min. 6 years experience • Min. 3 year experience in structural design for buildings	1	8
NC20	Building Design/Landscape Architect	• professionally qualified architect with Bachelor and master degree in architecture • Min. 8 years experience • Min 3 years as an architect in major construction projects with experience in Landscape Design	1	6
NC21	Drainage Engineer	• Bachelor degree in Civil Engineering or the relevant degree under civil engineering. • Min. 5 years of professional experience	1	12
Non-Key Experts				
NC22	Junior Engineers	• Bachelor degree in civil engineering • Min. 2 years of experience in highway/railway.	8	240
NC23	CAD Engineer	• Bachelor degree in civil engineering/Draftsman • Min. 5 years of professional experience • Min. 2 years in preparing engineering drawings.	3	90

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		Subtotal	**47**	**916**
Note: CVs of Engineers and Technical Officers (Non-key Experts) are not required for inclusion in the proposal and will not be evaluated. However, CVs must be submitted to Client for approval prior to mobilization.				

D. Output and Reporting Requirements

Table A3.16: Reporting Requirements

Report	Submission Deadline (no. of months after commencement)
1. Inception Report	1
2. Draft Feasibility Study Report for MRT 4	6
3. Final Feasibility Study Report for MRT 4	9
4. Draft Conceptual Design Report	15
5. Draft Final Conceptual Design Report	20
6. Final Conceptual Design Report	25
7. Draft Final Report Bidding Documents for MRT 4	25
8. Final Report Bidding Documents for MRT 4	28

E. Facilities Provided by the Client

33. DOTr will provide the consultant with all available data, study, reports related to the project.

34. DOTr will provide all counterpart staff necessary for the successful completion of the project. A Project Management Team will be established under the DOTr Project Director. The project Management Team will supervise and coordinate the consultancy services.

35. The consultant shall include in their cost estimate the costs for office and residential accommodation, vehicles and communications, office furniture equipment and consumables. Furthermore, the entire professional and support staff and any other items required carrying out the activities.

F. Professional Staff Input:

36. International Consultant: 209-person month and National Consultant: 916-person month

OUTLINE TERMS OF REFERENCEFOR RAILWAY SECTOR SUB-PROJECTS

1. The key objective of the consulting services is to assist the government in planning and preparation of public sector priority infrastructure investments. For each priority investment sub-project the Consultant may be required to carry out the following activities: (i) pre-feasibility studies (which may include preparation of master plans or other studies); (ii) feasibility studies; (iii) preliminary design studies and surveys; (iv) detailed engineering design; (v) preparation of bidding documents and assistance to the implementing agencies in the tendering process; and vi) preparation of consultant selection documents and assistance in the recruitment of construction supervision consultants. The Consultant may be required to carry out any or all of those activities for each sub-project, or in cases where some or all of the activities have been completed or partly completed by a third party, the Consultant may be required to perform a due diligence review for the activities that have been carried out to ensure that the outputs meet the highest technical standards as well as conformance to norms and regulations of the government and the financing institution including social and environmental safeguards. The sub-projects are identified as (i) Feasibility Study for Additional Rolling Stocks for LRT-2, (ii) Detailed Feasibility Study of North Philippine Dry Port Freight Rail Service, (iii) Feasibility Study and Detailed Design for Transit Oriented Development, (iv) Feasibility Study for the Revival of Tarlac-San Jose Spur Line and Balagtas Cabanatuan Spur Line, and (v) North Luzon Railway Business Case Study. The exact scope of each assignment as well as the required outputs will be described in the detailed TORs.

A. Feasibility Study for Additional Rolling Stocks for LRT-2

2. The Government of Philippines has requested Asian Development Bank (ADB) for a loan for project preparation of Railway Sub-sector projects, which includes Feasibility study for additional rolling stock requirement for LRT-2.

3. The proposed Railway Rolling Stock Project will improve the railway transport capacity in LRT-2 by financing additional rolling stock, i.e. diesel locomotives, passenger carriages and related equipment. The additional rolling stock will be used to schedule additional trains on LRT-2 corridor. The new additional rolling stock will enable LRT-2 to satisfy steadily growing demand and increase its market share.

4. **Impact and Outcome**. The impact will be efficient and safe railway transport in Philippines, aligned with the National Plan. The outcome will be increased railway transport capacity in the main line network of Philippine Railway.

5. **Outputs**. The project has two outputs. Output 1 comprises the procurement and commissioning of new rolling stock consisting of passenger carriages and diesel electric locomotives for LRT-2. Output 2 comprises the procurement and commissioning of new equipment consisting of relief cranes, train washing plants, simulator for loco-master training etc. as per the requirements of the LRT-2.

6. This project administration manual (this PAM) is prepared to provide reference for the Government and ADB to facilitate administration of this loan. It also lays down monitoring and control procedures which are to be used to ensure that the intended objectives are realized.

7. The consultant will also assist in the preparation of contracts and bid process management for awarding of the contracts

8. The location of the assignment shall be Manila, Philippines, and proximate areas in Philippines as needed. The assignment is expected to commence in XXX 2020 and be completed in approximately 6 months' time.

9. The assignment shall be input-output/performance-based with specific outputs and deliverables. It is estimated that about 35 person-months of international and 22 person-months of national consultants' services will be required for the assignment. The required position and person months for the Consultant is as shown in Table A3.17.

10. ADB will recruit the consultants in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time), and TA Procurement Regulations applicable at the time of implementation.

Table A3.17: Summary of Consulting Services Requirement for Feasibility Study-Rolling Stock

S. No.	Position (International)	Total Person-Months		Position (National)	Total Person-Months
1	Team Leader/Sr. Rolling Stock Expert	4		National Coordinator	6
2	Rolling Stock Expert	6		Professional Support Staff	16
3	Market Research Expert	3			
4	Contract and Procurement Expert	4			
5	Finance Expert	3			
6	Railway O&M Expert	3			
7	Civil Track Expert	3			
8	Rail Safety Expert	3			
9	Transport Specialist/Economist	4			
10	Climate Change Specialist	2			
Total		**35**			**22**

B. Detailed Feasibility Study of North Philippine Dry Port Freight Rail Service

11. The Government of Philippines has requested Asian Development Bank (ADB) for a loan for project preparation of Railway Sub-sector projects.

12. The Detailed Feasibility Study (DFS) is to assess the viability of a container rail transport service to move cargo to and from the Manila International Container Terminal (MICT) to the North Philippine Dry Port. This is in line with the MICT plans to build a dry port in the Northern Philippines to service the provinces of Bulacan, Pampanga and Tarlac, among others. This will entail the repair of an approx. 82km railway line, installation of signaling systems and re-opening of the 4km railway from Manila Port to Tutuban. The Consultant is supposed to have a detailed discussion with Department of Transportation (DOTr), Freight Forwarders and other relevant Government and Private agencies in order to propose a preferred option.

13. The overall goal of the study is to come up with a Detailed Feasibility Study (DFS) of the North Philippine Dry Port Container Rail Transport Service with Basic Design documents for the implementation of the project. The DFS shall determine the best implementation options/configurations that would generate the highest value for money (VfM) through Value Engineering/Value Analysis (VE/VA), which includes the most appropriate alignment.

14. **Develop Design Criteria.** The Consultant shall prepare comprehensive design criteria in accordance with the design standards internationally accepted/applied for such container rail transport services.

15. **Develop Draft Basic Design.** To the extent technically and economically justifiable and practicable, the Consultant is required to develop outline designs for different options for the freight rail transport service, enabling the executing agency to objectively compare the different options. Each option shall be developed in sufficient detail to demonstrate that the Project objectives and design criteria have been complied with and to enable preliminary construction costs to be estimated and a construction program to be prepared.

16. **Project Cost Estimate.** The Consultant shall prepare a preliminary cost estimate broken down into the different contracts showing the projected expenditure profile throughout the Project on a month-by-month basis for each construction contract and any other works associated with the Project.

17. **Economic and Financial Evaluation.** The Consultant shall develop economic and financial analysis for the project in accordance with ADB *Guidelines for the Economic Analysis of Projects 2017,* and ADB Guidelines on *Financial Management and Analysis of Projects 2005*. They shall include evaluations that are directly comparable to those produced previously for similar projects but should be expanded and refined in whatever way that the Consultant sees as appropriate. The economic evaluation will output the predicted economic internal rate of return, benefit-to-cost ratio, and net present value for the Project. Sensitivity studies should be undertaken in the similar way of those done at the feasibility stage. The financial evaluation aims to measure and evaluate financial aspects of the Project and will produce financial net present value (FNPV) and financial internal rate of return (FIRR).

18. **Update of Draft Basic Design.** As soon as possible in the DFS phase, the Consultant shall update the draft basic design based on the results and findings of the DOTr and other relevant agencies. The gaps and additional studies, identified in the draft basic design, is to be finalized/completed in the DFS phase. The updated basic design should then be submitted to DOTr for review, and once approved by DOTr, the Consultant may proceed preparing the final basic design based on the updated and approved preliminary design.

19. **Detailed Feasibility Study. T**he Consultant is required to prepare final basic designs for all parts of the Project. The Consultant shall use state-of-the-art techniques and standards to produce an efficient, robust, and buildable design that complies fully with the agreed design criteria developed. The design shall conform to international codes and standards, and, where relevant, reference shall be made to published design and detailing guides.

20. **Safeguard Compliance.** The Consultant shall update, environment impact assessment (EIA) or Initial Environment Examination (IEE), as relevant, Land Acquisition & Resettlement Plans (LAPs), and incorporate requirements to be fulfilled by contractors in bidding documents.

The Consultant shall review all previous studies, in particular in line with ADB's Safeguard Policy Statement 2009 (SPS), and ADB's Handbook on Involuntary Resettlement: A Guide to Good practice.

21. **Gender Equality**. The Consultant will carry out various tasks but not limited to the following:

(i) Review documentation for the Project area and making recommendations as appropriate to address the objectives of ADB's Gender and Development Policy (1998);
(ii) Include detailed gender equality- and social inclusion-sensitive activities in the engineering design and resettlement plan;
(iii) Conduct an analysis of men and women's access to resources and services and an analysis of men and women's roles in decision making, division of labor, development priorities, and other variables that will impact on their participation in the project and guide the project design to avoid increasing the burden on women;
(iv) Assess the absorptive capacity, considering how women and men will participate in the Project–their motivation, knowledge, skills and organizational resources;
(v) Design mechanisms that will ensure women's access to Project benefits.
(vi) Develop a management program for sexually transmitted infections to address HIV/AIDS and human trafficking issues during the construction period.
(vii) Prepare a comprehensive and integrated road safety awareness campaign to be implemented during the construction period.

22. The consultant will also assist in the preparation of contracts and bid process management for awarding of the contracts.

23. The location of the assignment shall be Manila, Philippines, and proximate areas in Philippines as needed. The assignment is expected to commence in XX 2020 and be completed in approximately 12 months' time.

24. The assignment shall be input-output/performance-based with specific outputs and deliverables. It is estimated that about 130 person-months of international and 92 person-months of national consultants' services will be required for the assignment. The required position and person months for the Consultant is as shown in TableA3.18.

25. ADB will recruit the consultants in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time), and TA Procurement Regulations applicable at the time of implementation.

Table A3.18: Consulting Services Requirement for Detailed Feasibility Study of Dry Port Freight Rail Transport

S. No.	Position (International)	Total Person-Months	Position (National)	Total Person-Months
1	Team Leader/Sr. Railway Engineer	12	National Coordinator/Railway Engineer	12
2	Railway Engineer	24	Professional Support Staff	48
3	Market Research Expert	8	Climate Change Specialist	4
4	Contract and Procurement Expert	10	Environmental Specialist	12
5	Finance Expert/Economist	5	Gender Specialist	4
6	Climate Change Specialist	5	Social Safeguard Specialist	12
7	Transport Planner/Modeler	36		
8	Environmental Specialist	12		
9	Gender Specialist	6		
10	Social Safeguard Specialist	12		
Total		130		92

C. Feasibility Study and Detailed Design for Transit Oriented Development

26. The Government of Philippines has requested Asian Development Bank (ADB) for a loan for project preparation of Railway Sub-sector projects, which includes feasibility study and detailed design for Transit Oriented Development (TOD) in Philippines.

27. The feasibility of such TOD corridors will be studied by the Consultant in discussion with Department of Transportation (DOTr), and other relevant Government and Private agencies. DOTr will provide reports/design of transport infrastructure available with them to the Consultant. The Metro Manila is one of the cases for TOD corridors, but other locations are also to be analyzed by the Consultant based on their experience in other countries.

28. At the early stage of the project, the Consultant will develop a robust process that ensures effective appraisal, initiation and delivery of multi-stakeholder TOD projects.

29. **Data collection and survey**: The Consultant is expected to conduct key informant interviews with stakeholders involved, collect maps and diagrams relative to the project, and acquire/ synthesize quantitative data on financing aspects.

30. **Case study report**: Based on the data collected, the Consultant is expected to write up a case study report. The contents of the report should be consulted with relevant stakeholders such as national and local governments, DOTr, ADB and others to ensure accurate reflection of facts and coherent messaging. The Consultant has to examine some best practices for the application of TOD policies in different countries. Some of the lessons for the successful application of TOD policies that the case study may offer but not limited to:

(i) The need for a transit-oriented regional growth management plan
(ii) The need for station area zoning regulations (mixed-use, minimum density, maximum parking, etc.)

(iii) The need for joint development among local governments, transit agencies, and private developers
(iv) The need for an institutional mechanism for public and private cooperation in station area development

31. **Identification of TOD Corridors**. The Consultant has to identify corridors/areas suitable for transit oriented development and whether it is proposed to prepare a structure plan or master plan for the area or part of the area. Such identification plan will include as a minimum:

(i) Criteria for Transit Oriented Development Location Identification
(ii) Transit potential and level of service
(iii) Infrastructure context
(iv) Land availability
(v) Market interest
(vi) Amenity
(vii) Role of the node or location within the broader network
(viii) Potential development impacts
(ix) Existing or future potential for connectivity, accessibility and integration
(x) Ability to deliver mixed land use

32. **Develop Preliminary Design**. To the extent technically and economically justifiable and practicable, the Consultant is required to develop outline designs for different options for the TOD corridor agreed with the DOTr, enabling the executing agency to objectively compare the different options. Each option shall be developed in sufficient detail to demonstrate that the Project objectives and design/identification criteria have been complied with and to enable preliminary construction costs to be estimated and a construction program to be prepared.

33. **Project Cost Estimate.** The Consultant shall prepare a preliminary cost estimate for the approved TOD corridors.

34. **Economic and Financial Evaluation**. The Consultant shall develop economic and financial analysis for the project in accordance with ADB Guidelines for the Economic Analysis of Projects 2017, and ADB Guidelines on Financial Management and Analysis of Projects 2005. The economic evaluation will output the predicted economic internal rate of return, benefit-to-cost ratio, and net present value for the Project. The financial evaluation aims to measure and evaluate financial aspects of the Project and will produce financial net present value (FNPV) and financial internal rate of return (FIRR).

35. **Detailed Design**. The Consultant is required to prepare detailed designs for all parts of the TOD except those identified as “to be designed by contractors”. The Consultant shall use state-of-the-art techniques and standards to produce an efficient, robust, and buildable design that complies fully with the agreed criteria developed in earlier phase of the project.

36. **Safeguard Compliance**. The Consultant shall develop, environment impact assessment (EIA) or Initial Environment Examination (IEE), as relevant, Land Acquisition & Resettlement Plans (LAPs), and incorporate requirements to be fulfilled by contractors in bidding documents. The Consultant shall review all previous studies, in particular in line with ADB’s Safeguard Policy Statement 2009 (SPS), and ADB’s Handbook on Involuntary Resettlement: A Guide to Good practice.

37. **Gender Equality**. The Consultant will carry out various tasks but not limited to the following:

(i) Review documentation for the TOD Project area and making recommendations as appropriate to address the objectives of ADB's Gender and Development Policy (1998);
(ii) Include detailed gender equality- and social inclusion-sensitive activities in the design and resettlement plan;
(iii) Conduct an analysis of men and women's access to resources and services and an analysis of men and women's roles in decision making, division of labor, development priorities, and other variables that will impact on their participation in the project and guide the project design to avoid increasing the burden on women;
(iv) Assess the absorptive capacity, considering how women and men will participate in the Project–their motivation, knowledge, skills and organizational resources;
(v) Design mechanisms that will ensure women's access to Project benefits.
(vi) Develop a management program for sexually transmitted infections to address HIV/AIDS and human trafficking issues during the construction period.

38. The location of the assignment shall be Manila, Philippines, and proximate areas in Philippines as needed. The assignment is expected to commence in xx 2020 and be completed in approximately 12months' time.

39. The assignment shall be input-output/performance-based with specific outputs and deliverables. It is estimated that about 164 person-months of international and 76 person-months of national consultants' services will be required for the assignment. The required position and person months for the Consultant is as shown in TableA3.19.

40. ADB will recruit the consultants in accordance with ADB's Procurement Policy (2017, as amended from time to time) and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time), and TA Procurement Regulations applicable at the time of implementation.

Table A3.19: Summary of Consulting Services Requirement for Feasibility Study/Detailed Engineering Design- Transit Oriented Development

S. No.	Position (International)	Total Person-Months	Position (National)	Total Person-Months
1	Team Leader/Sr. Transport Planner	10	National Coordinator	8
2	Transport Specialist/Economist	12	Professional Support Staff	36
3	Market Research Expert	6	Environmental Specialist	12
4	Urban Planner	48	Gender Specialist	8
5	Finance Expert	10	Social Safeguard Specialist	12
6	Climate Change Specialist	5		
7	Transport Planner/Modeler	48		
8	Environmental Specialist	10		
9	Gender Specialist	5		
10	Social Safeguard Specialist	10		
Total		164		76

D. Feasibility Study for the Revival of Tarlac-San Jose Spur Line and Balagtas Cabanatuan Spur Line

41. The Government of Philippines has requested Asian Development Bank (ADB) for a loan for project preparation of Railway Sub-sector projects, which includes feasibility study for revival of spur lines of Tarlac-San Jose and Balagtas-Cabanatuan in Philippines.

42. The overall goal of the feasibility study is to determine the viability for the revival of the spur lines aimed at improving interconnectivity within Central Luzon and supporting the tourism, trade and commerce as well as agro-industrial productivity. The study is intended to cover market, technical, financial, economic, social, environmental, and institutional aspects of the project to ensure optimal benefits are attained during the implementation of the project.

43. **Develop Preliminary Design**. To the extent technically and economically justifiable and practicable, the Consultant is required to develop outline design and reports for different options for the revival of spur lines, enabling the executing agency to objectively compare the different options. Each option shall be developed in sufficient detail to demonstrate that the Project objectives and design/identification criteria have been complied with and to enable preliminary construction costs to be estimated and a construction program to be prepared.

44. **Economic and Financial Evaluation**. The Consultant shall develop economic and financial analysis for the project in accordance with ADB Guidelines for the Economic Analysis of Projects 2017, and ADB Guidelines on Financial Management and Analysis of Projects 2005. The economic evaluation will output the predicted economic internal rate of return, benefit-to-cost ratio, and net present value for the Project. The financial evaluation aims to measure and evaluate financial aspects of the Project and will produce financial net present value (FNPV) and financial internal rate of return (FIRR).

45. **Safeguard Compliance**. The Consultant shall develop, environment impact assessment (EIA) or Initial Environment Examination (IEE), as relevant, Land Acquisition & Resettlement Plans (LAPs), and incorporate requirements to be fulfilled by contractors in bidding documents. The Consultant shall review all previous studies, in particular in line with ADB's Safeguard Policy Statement 2009 (SPS), and ADB's Handbook on Involuntary Resettlement: A Guide to Good practice.

46. **Gender Equality**. The Consultant will carry out various tasks but not limited to the following:

(vii) Review documentation for the Project area and making recommendations as appropriate to address the objectives of ADB's Gender and Development Policy (1998);
(viii) Include detailed gender equality- and social inclusion-sensitive activities in the design and resettlement plan;
(ix) Conduct an analysis of men and women's access to resources and services and an analysis of men and women's roles in decision making, division of labor, development priorities, and other variables that will impact on their participation in the project and guide the project design to avoid increasing the burden on women;
(x) Assess the absorptive capacity, considering how women and men will participate in the Project–their motivation, knowledge, skills and organizational resources;
(xi) Design mechanisms that will ensure women's access to Project benefits.
(xii) Develop a management program for sexually transmitted infections to address HIV/AIDS and human trafficking issues during the construction period.

47. The location of the assignment shall be Manila, Philippines, and proximate areas in Philippines as needed. The assignment is expected to commence in xxx 2020 and be completed in approximately 6months' time.

48. The assignment shall be input-output/performance-based with specific outputs and deliverables. It is estimated that about 26 person-months of international and 53 person-months of national consultants' services will be required for the assignment. The required position and person months for the Consultant is as shown in TableA3.20.

49. ADB will recruit the consultants in accordance with ADB's Procurement Policy (2017, as amended from time to time) and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time), and TA Procurement Regulations applicable at the time of implementation.

Table A3.20: Summary of Consulting Services Requirement for Feasibility Study- Spur Lines

S. No.	Position (International)	Total Person-Months	Position (National)	Total Person-Months
1	Team Leader/Sr. Railway Engineer	6	National Coordinator	8
2	Transport Economist	4	Professional Support Staff	24
3	Finance Expert	2	Environmental Specialist	8
4	Institutional Development Specialist	3	Gender Specialist	5
5	Environmental Specialist	4	Social Safeguard Specialist	8
6	Gender Specialist	3		
7	Social Safeguard Specialist	4		
Total		**26**		**53**

E. North Luzon Railway Business Case Study

50. The Government of Philippines has requested Asian Development Bank (ADB) for a loan for project preparation of Railway Sub-sector projects, which includes Business case study for North Luzon Railway in Philippines.

51. The aim of this study is to provide DOTr with an up to date EIRR and FIRR to show that the proposed railway into the Cagayan Valley is worthy of a further, more detailed study and how the project may be structured in financial terms if it is proven to be viable.

52. **Outcome**. The outcome of this study will enable a decision to be made on whether a full feasibility study should be carried out to fully assess the viability of the project in terms of technical, financial, environmental and demand.

53. **Project Cost Estimate**. The Consultant shall prepare a high-level cost estimate for the next phase of the project.

54. The location of the assignment shall be Manila, Philippines, and proximate areas in Philippines as needed. The assignment is expected to commence in Nov 2020 and be completed in approximately 3 months' time.

55. It is estimated that about 13 person-months of international and 10 person-months of national consultants' services will be required for the assignment. The required position and person months for the Consultant is as shown in Table A3.21.

56. ADB will recruit the consultants in accordance with ADB's Procurement Policy (2017, as amended from time to time) and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time), and TA Procurement Regulations applicable at the time of implementation.

Table A3.21: Summary of Consulting Services Requirement for Business Case Study-Luzon Railway

S. No.	Position (International)	Total Person-Months
1	Team Leader/Sr. Railway Engineer	5
2	Transport Economist	5
3	Finance Expert	3
Total		**13**

Position (National)	Total Person-Months
National Coordinator	3
Professional Support Staff	3
Environmental Specialist	2
Social Safeguard Specialist	2
	10

TERMS OF REFERENCE FOR ROADS AND BRIDGES CONSULTANTS[9]

A. Project Background

1. The Government of the Philippines has requested the Asian Development Bank (ADB) assistance for a technical assistance loan for Infrastructure Preparation and Innovation Facility (IPIF). The project will support the two key agencies responsible for national public infrastructure investments, namely the Department of Transportation (DOTr) and the Department of Public Works and Highways (DPWH) and. Specifically, the project will assist the two implementing agencies in (i) making sound and objective investment decisions; (ii) providing robust project pipelines; and (iii) helping fill the infrastructure gap of the country. The project is estimated to cost $160 million; of which $100 million will be financed by ADB. The government will finance $60 million to finance part of the consulting services as well as taxes and duties during implementation. The major expenditure items, representing approximately 87% of the total cost (including taxes and duties), will comprise consulting services to support the government project preparation and implementation activities for public sector investments.

2. **Status of the Infrastructure in the Philippines.** Despite steady economic improvement, the quality of infrastructure of the Philippines continues to lag significantly behind other emerging Southeast Asian countries. In 2016–2017, the Philippines ranked 112th out of 138 countries in terms of quality of its infrastructure. Less than optimal infrastructure leads to higher economic cost, which in turn, undermines business potential and economic opportunities, especially in rapidly growing urban areas.

3. The poor state of the Philippines infrastructure is attributed to a number of factors including: (i) inadequate infrastructure investment; (ii) lack of inter-agency coordination; (iii) inadequate or incomplete infrastructure plans and implementation programs; (iv) restricted access to international expertise and constrained technical and management know-how in project preparation and implementation; and (v) reduced sustainability due to lack of resources for operation and maintenance. Complex government approval process and limited and difficult coordination between the two main agencies responsible for infrastructure (DOTr and DPWH) and other key agencies also impedes project preparation and implementation. As a result, infrastructure projects are often not delivered as planned due to either poor project formulation or poor project implementation, or both. Delays in safeguard compliance, procurement, and land acquisition, as well as inadequate project management systems also contribute significantly to delays and higher cost of infrastructure projects.

4. **Rationale.** Against this backdrop, the project is expected to enable DOTr and DPWH to plan, execute and implement public infrastructure projects more efficiently and effectively by addressing some of the key constraints to infrastructure planning, design, and implementation, and by providing access to international sources of innovation, expertise, advice, and best practices. The project will support both DOTr and DPWH to undertake project preparation work for priority infrastructure projects to be financed by official development assistance (ODA) or through the government's internal resources.

5. The government's socioeconomic agenda aims to increase public infrastructure spending from 2.6% of gross domestic product in 2015 to 7% by 2022 representing approximately $14.5 billion annually. Priority infrastructure investments identified by the government for preparation under the project include national expressways, inter-island bridges, flood control structures,

[9] The TOR may change up to the request for proposal stage.

airports, subways, urban transportation and railways. Recent large ODA programs of assistance have been pledged from the governments of the People's Republic of China, Japan, and the Republic of Korea, in support of the government priority investments to accelerate public infrastructure development as well as to expand its public private partnership (PPP) project program.

6. To more effectively use the pool of ODA and domestic funds pledged and budgeted, and to realize the goal of improving the efficiency of infrastructure pre-investment activities the Project will provide financing for consulting services to accelerate progress in infrastructure delivery for inclusive and sustainable socioeconomic development through improved preparation of public infrastructure projects. The Project comprises four outputs:

1. Output 1: Preparation of Roads and Bridges Projects

7. Under this output, support will be provided to DPWH in planning and preparation of roads and bridges investment projects, including: (i) preparation of prefeasibility and feasibility studies, including economic and financial analysis; (ii) preparation of preliminary engineering studies; (iii) preparation of detailed engineering design; (iv) preparation of procurement documents and assistance in the tendering process; and (v) preparation of social and environmental safeguard assessment studies. An indicative list of roads and bridges investment projects to be the object of preparation under this output is provided in Table A3.22. While all projects in Table A3.22 are considered priority investments, the government may substitute any or all of the listed project with other roads and bridges projects within or outside the initial regions. Additional details of each project are available through the ADB Consultant Management System. This terms of reference (TOR) and request for proposal (RFP) are for the recruitment of consultants for Output 1 only.

Table A3.22 – Indicative List of Roads and Bridges Projects

Project Name	Required Action	Estimated Investment Cost
North Eastern Luzon Expressway	Preparation of feasibility study for 10-km tunnel	PhP18.42 billion (~ $372.17 million)
Nationwide Island Provinces Link Bridges for Sustained Economic Growth (Sorsogon–Samar)	Preparation of feasibility study for four bridges (1.2 km + 7.0 km + 6.0 km + 4.0 km) between Sorsogon and Samar	PhP92.23 billion (~ $1.84 billion)
Laguna Lakeshore Road Network	Preparation of feasibility study	PhP50 billion (~. $1 billion)
Panay–Guimaras–Negros Island Link (Long Span Bridge)	Preparation of feasibility study	PhP 97.5 billion (~. $1.95 billion)
Negros-Cebu Link Bridge	Preparation of feasibility study for a long span bridge between Negros and Cebu	PhP27.589 billion (~ $557.40 million)
Cebu-Bohol Link Bridge	Preparation of feasibility study for a long span bridge between Cebu and Bohol	PhP122.748 billion (~ $2.48 billion)
Samal Island–Davao City Connector Bridge	Preparation of feasibility study for a 1 km bridge over the Pakiputan Strait between Samal and Davao City and approximately 3.4 km approach roads	PhP17.815 billion (~ $359.94 million)

DED = detailed engineering design; km = kilometer; PFS = Pre-feasibility Study; PhP = Philippine peso.

2. Output 2: Preparation of Water Projects

8. Under this output, support will be provided to DPWH in planning and preparation for flood control investment projects including (i) preparation of river basin master plans including identification of priority flood control structures; (ii) preparation of feasibility study, including economic and financial analysis; (iii) preparation of preliminary design studies; (iv) preparation of detailed engineering design of priority infrastructures; (v) preparation of procurement documents and assistance in the tendering process; and (vi) preparation of social and environmental safeguard assessment studies. Selection of consultants for Output 2 is the object of a separate RFP.

3. Output 3: Preparation of Transportation Projects

9. Under this output, support will be provided to DOTr in the planning and preparation of rail, public transport, and port and airport investment projects, including: (i) preparation of prefeasibility and feasibility studies including economic and financial analysis; (ii) preparation of preliminary design studies; (iii) preparation of detailed engineering design; (iii) preparation of procurement documents and assistance in the tendering process; and (iv) preparation of social and environmental safeguards assessment studies. Selection of consultants for Output 3 is the object of a separate RFP.

4. Output 4: Improvement of Project Development Management System

10. Under this output, assistance will be provided to DOTr, DPWH and the National Economic and Development Authority (NEDA) for development and implementation of project management and monitoring systems. The project will also support capacity building of the agencies through preparation of documentation and manuals for project preparation activities to ensure sustainability of knowledge transfer and to embed project management systems in NEDA, DOTr, DPWH. Additional expertise may also be recruited under Output 4 to review work carried out by the consultants under Outputs 1, 2, and 3, particularly when the assignment consists or requires advanced technologies and expertise which are not currently available from within the client's organization. Selection of consultants for Output 4 will be the object of separate recruitment and is not covered by this TOR and RFP.

B. Consulting Assignment

11. The government recognizes the need for consultants to be mobilized as soon as possible after loan effectiveness and to expedite the recruitment process and ensure prompt implementation of the priority infrastructure investments. For this reason, the government has requested ADB to carry out the consultant selection on its behalf under advance action. The government also wishes to ensure that world class consultants with experience and qualifications in advanced technologies be recruited to provide appropriate innovative technologies and help build high quality climate resilience infrastructures more efficiently. In line with this objective, a consulting firm will be recruited for Output 1 with a contract valued at approximately$47.54 million (exclusive of taxes and contingencies).

1. Implementation Arrangements

12. DPWH will be the implementing agency responsible for Output 1 and will establish a project management unit (PMU) within its unified PMU (UPMU) to be responsible for the planning and preparation of roads and bridges projects and will oversee the outputs of the consultants.

13. The recruitment of the consulting firm is being undertaken by ADB in accordance with the ADB Guidelines on the Use of Consultants (2013, as amended from time to time) and it is planned that the contract will be signed with DPWH upon effectiveness of the technical assistance loan expected on January 2018.

14. The consultant will be recruited following quality-based selection procedures with full technical proposal. The successful proposal will constitute the basis for a retainer contract to be signed between DPWH and the consultant for the entirety of the works to be carried out under Output 1. Detailed TORs will be prepared by the PMU for each assignment under the contract and the consultant will be requested to submit detailed technical and financial propositions for each assignment. The propositions including proposed approach and methodology, work plan and technical and financial information, will be reviewed by the implementing agencies and, if satisfactory, the consultant will be requested to carry out the assignment at an agreed price generally on a lump sum basis. This process has been chosen to ensure expeditious implementation of the project by reducing the number of consultants to be selected and therefore eliminating the repetitive and lengthy selection process for each assignment.

2. Consulting Services

15. The key objective of the consulting services is to assist the government in planning and preparation of public sector priority infrastructure investments. For each priority investment sub-project the consultant may be required to carry out the following activities: (i) pre-feasibility studies (which may include preparation of master plans or other studies); (ii) feasibility studies; (iii) preliminary design studies and surveys; (iv) detailed engineering design; (v) preparation of bidding documents and assistance to the implementing agencies in the tendering process; and (vi) preparation of consultant selection documents and assistance in the recruitment of construction supervision consultants. The consultant may be required to carry out any or all of those activities for each sub-project, or in cases where some or all of the activities have been completed or partly completed by a third party, the consultant may be required to perform a due diligence review for the activities that have been carried out to ensure that the outputs meet the highest technical standards as well as conformance to norms and regulations of the government and the financing institution including social and environmental safeguards. The exact scope of each assignment as well as the required outputs will be described in the detailed TORs and request for proposition for each assignment.

3. Outputs

16. Under each assignment, the consultant will be required to deliver specific outputs. The outputs will be described in the detailed TORs for each assignment and will depend on whether the Consultant will be required to carry out the activity or carry out due diligence review of the output of a third party. For each type of activity, the typical required outputs may be as follows:

a. Pre-feasibility Study

17. The consultant may be required to carry out pre-feasibility study for inter-island bridge projects, or if the pre-feasibility study has been carried out by a third party (such as for the Panay–Guimaras–Negros Islands bridges under EXIM bank financing) the consultant will be required to carry a due diligence review of the pre-feasibility study carried out by the third party. If the due diligence review reveals insufficient or inadequate analysis, the consultant will be required to carry out additional studies and analysis and update and/or upgrade the pre-feasibility study to meet the highest standards as well as the norms and regulations of the government and the financing

institution including social and environmental safeguards. The pre-feasibility study will include but shall not be limited to:

(i) Preparation of Traffic Demand Forecast;
(ii) Establishment of Design Criteria;
(iii) Road and Bridge Planning and Outline Design;
(iv) Environmental and Social Consideration;
(v) Preparation of Construction Planning and Cost Estimation;
(vi) Economic and Financial Analysis; and
(vii) Preparation of Project Implementation Schedule.

b. Feasibility Study

18. The consultant will be required to carry out the feasibility study or, if the feasibility study has been carried out by a third party, the consultant will carry a due diligence review of the feasibility study. If the due diligence review reveals insufficient or inadequate analysis, the consultant will be required to carry out additional analysis and studies and update/upgrade the feasibility study to meet the highest technical standards as well as the norms and regulations of the government and the financing institutions including social and environmental safeguards. The feasibility study will include but shall not be limited to the following:

(i) Inventory and Condition assessment;
(ii) Traffic Study including traffic counts and origin-destination studies, and traffic projections related to the national, regional and sectoral plan for other mode of transportation;
(iii) Population growth projections including projected changes in rural and urban population distribution;
(iv) Actual and projected national and regional economic growth and projected per capita income growth;
(v) Actual and projected growth in tourism, agriculture, and manufacturing and processing industries;
(vi) Actual and projected vehicle operating cost;
(vii) Formulation of design options with comparison of cost-benefits analysis;
(viii) Evaluation of social benefits both quantifiable and non-quantifiable;
(ix) Determination of socio-economic characteristics of the beneficiaries and pattern of distribution of benefits;
(x) Quantitative financial risk analysis;
(xi) Projected cost of operations and maintenance (O&M) and sustainability analysis;
(xii) Identification of environmental impacts;
(xiii) Climate change impact assessment;
(xiv) Identification of social impact on vulnerable groups, women and children, and minorities;
(xv) Estimation of land acquisition and resettlement costs;
(xvi) Estimated cost of the project; and
(xvii) Financial and economic analysis (FIRR and EIRR).

c. Preliminary Engineering Design Studies

19. Prior to detailed engineering design, the consultant may be required to carry out and/or contract for carrying out all necessary surveys and studies that have been identified by the Feasibility Study and are required for the detailed design of the project, including but not limited to:

(i) Preliminary survey and studies/assessment;
(ii) Preliminary engineering design including geometric alignment, pavement design, rehabilitation, and/or widening of bridges;
(iii) GPS survey;
(iv) Topographic surveys;
(v) Geological and Geotechnical investigations;
(vii) Detailed geological studies (for tunneling);
(viii) Seismic evaluation studies;
(ix) Marine survey (for long span bridges);
(x) Wave action study and simulation (for long span bridges);
(xi) Wind action study (for long span bridges);
(xii) Erosion and accretion studies (for long span bridges);
(xiii) Right-of-way survey;
(xiv) Parcellary survey;
(xv) Right-of-way monumentation;
(xvi) Land acquisition and resettlement framework;
(xvii) Initial environmental examination;
(xviii) Social impact assessment;
(xix) Indigenous people assessment; and
(xx) Gender impact assessment.

d. Detailed Engineering Design

20. For road projects (that may include short bridges) the consultant may be required to carry out, detailed engineering design including, but not limited to the following:

(i) Identification of material sources;
(ii) Geometric engineering design;
(iii) Road typical cross-section and intersections;
(iv) Pavement detailed design;
(v) Small bridge structure detailed design;
(vi) Hydrology and drainage design;
(vii) Design parameters for seismic conditions;
(viii) Road safety audit;
(ix) Value engineering studies;
(x) Environmental impact assessment;
(xi) Environmental management plan;
(xii) Resettlement action plan;
(xiii) Gender action plan;
(xiv) Preparation of road O&M manual; and
(xv) Preparation of cost estimates.

21. For long span bridge projects (which may include approach roads), the consultant may be required to carry out, detailed engineering design including, but not limited to the following:

(i) Identification of material sources;
(ii) Bridge structural design;
(iii) Bridge elevation and design;
(iv) Pile and foundation design;
(v) Pier and header design;
(vi) Abutment design;
(vii) Road and bridge safety audit;
(viii) Deck, substructure and superstructure design;

(ix) Design of wave action protection works;
(x) Design of wind action protection systems;
(xi) Design parameters for seismic conditions;
(xii) Environmental impact assessment;
(xiii) Marine environmental impact assessment;
(xiv) Environmental management plan;
(xv) Resettlement action plan;
(xvi) Gender action plan;
(xvii) Preparation of bridge O&M manual; and
(xviii) Preparation of cost estimates.

22. **Design-Build Contracts.** For long span bridges, it may prove more economical and expeditious to carry out each project on design-build basis. In such case, the detailed engineering design will be carried out by the design-build contractor. The consultant however, may be required to prepare conceptual design and design-build bidding documents (see below) related to such contracts.

e. Preparation of Bidding Documents

23. **Civil Works Contracts.** Following detailed engineering design, the Consultant will be required to prepare bidding documents ready for tendering and assist the implementing agency in the bidding process and evaluation of tenders. Bidding will be carried out following international competitive bidding or national competitive bidding procedures for construction of civil works. Preparation of bidding documents may include but not be limited to the following:

(i) Invitation to bid;
(ii) Detailed design drawings;
(iii) Detailed contract drawings;
(iv) Complete technical specifications;
(v) Bill of Quantities;
(vi) Bidding documents;
(vii) Assistance in post-qualification of bidders;
(viii) Bid evaluation report for submission to the Bids and Award Committee (BAC);
(ix) Resolution of award and notice of award;
(x) Evaluation of traffic management plan during construction; and
(xi) Other pertinent documents related to pre-construction activities.

24. **Design-Build Contracts.** In case it is determined that a contract is to be awarded on a design-build basis, the Consultant will be required to prepare bidding documents for a design build contract and provide assistance to the implementing agencies in the evaluation of tenders and award of contract.

f. Selection of Construction Supervision Consultants

25. In parallel to the preparation of bidding documents and the bidding of civil works contracts, the Consultant may be required to assist the implementing agencies in the selection of consultants for construction supervision. This may include but not be limited to the following:

(xii) Preparation of criteria for evaluation of expressions of interest (EOIs);
(xiii) Guidance in the evaluation of EOIs and preparation of shortlist;
(xiv) Preparation of TORs for construction supervision consultants;
(xv) Preparation of Request for Proposals (RFPs);

(xvi) Preparation of criteria for technical evaluation;
(xvii) Guidance in the evaluation of technical and financial proposals; and
(xviii) Guidance during contract negotiations.

g. Training and Transfer of Knowledge

26. In parallel to the other outputs, the Consultant may be required to prepare curricula and conduct trainings on the foregoing outputs and related topics upon the request of the implementing agency.

C. Key Required Expertise

27. It is expected that the consultant will be required to provide the following key expertise at various times during the assignment. Other expertise may also be required and will be determined as individual assignments or projects will become more clearly defined.

Table A3.23 – Key Required Expertise

Consultant	Minimum Experience	Consultant	Minimum Experience
Senior Economist	15 years	Senior Geodetic/Survey Engineer	15 years
Senior Transport Planner	15 years	Senior Hydraulic Engineer	15 years
Senior Transport Economist	15 years	Senior Seismic Design Engineer	15 years
Senior Highway Engineer	15 years	Senior Foundation Engineer (Bridge)	15 years
Senior Tunnel Planner	15 years		
Senior Bridge Engineer	15 years	Senior Safety Engineer	15 years
Senior Hydrologist	15 years	Senior Current and Wave Expert	15 years
Senior Drainage Engineer	15 years	Senior Marine Biologist	15 years
Senior Quantity/Cost Engineer	15 years	Senior Value Engineering Expert	15 years
Senior Structural Engineer (bridge)	15 years	Senior Geotechnical/Soil Engineer	15 years
Senior Geotechnical Engineer	15 years	Senior Environmental Specialist	15 years
Senior Geologist	15 years	Senior Climate Change Specialist	15 years
Senior Pavement Engineer	15 years	Senior Gender Specialist	15 years
Senior Geotechnical Tunnel Engineer	15 years	Senior Sociologist	15 years
		Senior Land Acquisition/ Resettlement Specialist	15 years
Senior Geologist (Seismic)	15 years		
Senior Tunnel Engineer (Electro-Mechanical)	15 years	Senior Material Engineer	15 years
		Senior Procurement Specialist	15 years
Senior Tunnel Engineer (Communication)	15 years	Senior Electrical Engineer	15 years
		Senior Mechanical Engineer	15 years
Senior Tunnel Engineer (O&M)	15 years	Senior Slope Protection Engineer	15 years

O&M = operation and maintenance.

28. These key experts will not necessarily be part of the core team (as defined under para. 30) but will be expected to lead or be responsible to oversee the work of sub-team of experts during the various assignments. During the assignments, it may be necessary for the consultant to bring additional external expertise required with prior approval of the client.

D. Proposal Preparation

29. The shortlisted consulting firms are requested to prepare a detailed description of how they propose to deliver the outputs of the contract in the section of their proposal called “Approach and Methodology.” In this narrative, firms should clearly explain how they will achieve the outputs

and defined deliverables and include detailed information on key and non-key experts that will comprise the core project team and their proposed input. The consultant must also describe the experience of the firm or joint venture, and core team key experts in the Philippines or similar geopolitical environment.

30. **Core team of experts.** The consultant must provide a minimum of 54 person months of key experts (core team) to be posted at the PMU for the duration of the contract. The core team, including a Project Management Specialist/Team Leader, a Senior Highway Engineer, and a Senior Bridge Engineer which will be constituted preferably with permanent employees of the consulting firm or experts working exclusively for the firm or joint venture member, with significant experience with the firm in relevant field of activities. The team will be based at the implementing agencies office in Manila but may be required to travel to project sites frequently. Only one curriculum vitae must be submitted for each key and non-key expert included in the proposal. Only the curriculum vitaes of key experts will be scored as part of the technical evaluation of proposals. The curriculum vitaes of non-key experts will not be scored, however, ADB will review the individual curriculum vitaes and may reject the curriculum vitaes of non-key experts if the experience and qualification of the experts are considered inadequate or substandard. The overall composition of the Core Team, the credentials of non-key experts, and the design of the team as a whole – including the appropriateness of the level of inputs (home, field, total) – will be taken into consideration in the evaluation of Quality of Approach and Work Plan and Personnel Schedule criteria.

31. All positions under the contract, both key and non-key experts for the core team, must be included and budgeted for in the financial proposal in accordance with the person-month allocation required for each as defined by the consultant's proposed approach and methodology and work plan. The budget for the key and non-key experts to be appointed for individual assignments/sub-projects will be the object of separate propositions during implementation and will be paid from the unallocated fund category reserved under the contract for those assignments/subprojects. Likewise, travel costs of the core team to cover expenses of travel between the implementing agencies headquarters and the project sites, which cannot be determined until the project sites are selected, will be allocated from unallocated funds during implementation.

32. The proposal should also include a confirmation of availability of key experts listed in Table A2.3 that may be assigned senior positions in various sub-project assignments. The qualifications and expertise of those key experts will be a key consideration in the evaluation of the qualification of the firm or joint venture.

1. Key Experts (Core Team)

33. The consultant has full discretion over the composition and structure of the proposed core team of experts, and is responsible to provide all necessary expertise and qualifications to deliver the required output of the assignment. However, as a minimum requirement, the team must comprise 54 person months of input for 3 key positions including: (i) Project Management Specialist/Team Leader (42 person-months); (ii) Senior Highway Engineer (6 person-months); and (iii) Senior Bridge Engineer (6 person-months) (Table A3.3). The person-months indicated in the table below are strict minimum and the consultant may propose longer inputs if it is deemed necessary to meet the objectives of the approach and methodology.

Table A3.24 – Key Expert Qualifications

Position	Minimum Person Months	Requirements
Project Management Specialist / Team Leader	42	• Bachelor Degree in Civil Engineering, Post Graduate Degree preferred; • Minimum of 20 years of Professional experience related to Feasibility Study and Detailed Engineering Design complex Road and Bridge projects.
Senior Highway Engineer	6	• Bachelor degree in civil engineering, post-graduate degree preferred; • Minimum 20 years of professional experience related to the design of major highways; • Minimum 15 years in feasibility studies, planning, and engineering design of major highway projects.
Senior Bridge Engineer	6	• Advanced degree Civil Engineering; post-graduate degree preferred; • Minimum 20 years of professional experience related to the design of major bridges; • Minimum 15 years' experience in feasibility studies, planning and engineering design of long span bridges (deep sea locations).

34. **Non-Key Experts**. In addition to the mandatory key experts described in Table A3.3, shortlisted consultant is expected to provide non-key experts for the Core Team to ensure all aspects of the work can be undertaken and all deliverables and reports are completed in accordance with the implementation schedule. All non-key experts must have adequate qualifications and experience in a relevant field with a minimum of 5 years of experience.

35. In addition, the consultant is required to provide technical and administrative staff necessary for the core team to achieve its role and objectives. The proposal must provide a list of technical and administrative personnel to be provided. The consultant is responsible to ensure that the technical and administrative personnel is sufficient to effectively carry out its functions. The cost of technical and administrative staff may be included in the financial proposal, but it is understood that if additional staff is required during implementation of the contract to meet its objective and schedule, the cost of such additional staff will be borne by the consultant and will not be compensated.

36. The project list in Appendix 1 is indicative. While all projects listed are considered priority investments, the government may substitute any of the listed projects with other roads and bridges projects within or outside the initial regions.

37.

2. Specific Tasks of Key Experts

a. Project Management Specialist/ Team Leader

38. The Project Management Specialist/Team Leader will be responsible for:

(i) overall liaison with the implementing agencies;
(ii) preparation of propositions for each individual assignment and negotiations with the implementing agencies;
(iii) coordination of the input and output of the sub-teams of consultants (both in the field and home based) involved in the individual assignments;
(iv) quality control of work carried out and output delivered by the sub-teams;

(v) overall management and administration of the contract; and
(vi) reporting to the implementing agencies on progress of work being carried out by the core team and the sub-teams.

39. The Project Management Specialist/Team Leader must have an advanced degree from a recognized institution in Engineering or other relevant field and have at least 20 years of professional experience including 15 years in management of roads and bridges projects. Experience in the Philippines or similar geopolitical environment would be considered an asset.

b. Senior Highway Engineer

40. The Senior Highway Engineer will be responsible for:
(i) advising the Team Leader in the preparation of propositions for roads/highway subprojects;
(ii) monitoring the work and output of the sub-teams involved in carrying out roads/highway subprojects;
(iii) advising the Team Leader and the implementing agencies on matters related to roads/highway design and construction.

41. The Senior Highway Engineer will have an advanced degree from a recognized institution in Civil Engineering or other relevant field and have at least 20 years of professional experience including 15 years in feasibility studies, planning, and engineering design of major highway projects, including experience with tunnelling. Experience in the Philippines or similar geopolitical environment would be considered an asset.

c. Senior Bridge Engineer

42. The Senior Bridge Engineer will be responsible for:
(i) advising the Team Leader in the preparation of propositions for long span bridge subprojects;
(ii) monitoring the work and output of the sub-teams involved in carrying out long span bridge subprojects; and
(iii) advising the Team Leader and the implementing agencies on matters related to long span bridge design and construction.

43. The Senior Bridge Engineer will have an advanced degree from a recognized institution in Civil Engineering or other relevant field and have at least 20 years of professional experience including 15 years in feasibility studies, planning, and engineering design of long span bridge or similar structures. Experience in the Philippines or similar geopolitical environment would be considered an asset.

3. Services Provided by the Employer

44. DPWH will assign relevant counterpart staff to the project on a full-time basis. DPWH will provide furnished office accommodation in Manila, office communications (local calls and internet connection), and other in-kind contributions. DPWH shall assist in obtaining the necessary permits, visas and other documents necessary by the consultant to carry out the services under contract. DPWH will facilitate field visits and arrange meetings with relevant authorities and agencies. In addition, DPWH shall assist with the respective authorities responsible for maintenance of peace and order along project location when and if necessary, upon request of the consultant. Any other office requirements, facilities (equipment and consumables) and

transport requirements should be provided by the consultant. The government will pay or cover through other allowed means in line with the Philippine's taxation framework, the applicable Philippine taxes and duties on the contract on behalf of the consultant. Additional information regarding the tax law in the Philippines can be found at the Government of the Philippines website (https://www.bir.gov.ph/index.PhP/tax-code.html).

45. The core team will be based at DPWH project office in Manila. DPWH shall provide the consultant with office space which shall be renovated and/or repaired, and the price of such renovation and/or repair will be paid from unallocated funds from the consultant's contract. While the office is being repaired, an office shall be rented by the consultant for a period of approximately three months to be used by the consultant in the interim period. The cost of rental will also be paid from the consultant's contract provided it is specified in the financial proposal.

4. Equipment

46. The consultant shall provide, operate and maintain a service vehicle for the Core Team. The proposal should identify the critical element of equipment, furniture and supplies that will be required by the core team. In addition, the consultant will be requested to procure equipment to assist the implementing agency and the sub-project teams in their assignments. The equipment and supplies for the sub-project teams will be the object of propositions for each sub-project and should not be included in the core team requirements. All equipment and assets purchased under the project and paid by the project will adhere to ADB's Procurement Policy (2017, as amended from time to time) and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time), and shall remain in the possession of the government. Upon completion of the project, these assets will be turned over to the government. The equipment to be purchased by the consultant may include but not be limited to IT Equipment such as computer, printer, photocopy machine, as well as office furniture and equipment.

E. Request for Proposition

47. As part of its proposal, the consultant is required to prepare the first proposition for a sub-project. The proposition should contain both technical and financial components. This will allow for early mobilization, not only of the core team, but also of the first sub-project team, towards meeting the objective of expediting implementation of the Project. The technical component shall include the detailed approach and methodology for the proposition, curriculum vitaes of key and non-key experts, as well as proposed work plan and personnel schedule for the sub-project. The financial component shall include all costs associated with the sub-project.

48. For each of the sub-projects where a Request for Proposition will be issued during contract implementation, the consultant shall include a minimum of two and maximum of three curriculum vitaes of experts that may be deployed as team leader for the sub-projects.

F. Evaluation of Proposals

49. The evaluation of proposals will follow the evaluation criteria provided in the RFP. The approach and methodology will consider both how the consultant envisages the use of the Core Team as well as the response to the proposition/sub-project included in this RFP. Furthermore, in the evaluation of the Quality of Methodology, Work Program and Personnel Schedule, consideration will be given on whether the overall team composition (key and non-key experts) is appropriate to meet the TOR and how it matches the proposed methodology. The extent by which the proposed key and non-key experts are full time staff of the consultant will also influence the

evaluation of the Quality of Methodology, Work Program and Personnel Schedule. The qualification of the firm will, in addition to previous experiences on similar projects, take into consideration the curriculum vitaes provided for potential team leaders of subsequent sub-projects.

TERMS OF REFERENCE FOR WATER (FLOOD CONTROL) CONSULTANTS

A. Project Background

1. The Government of the Philippines has requested Asian Development Bank (ADB) assistance for a technical assistance loan for Infrastructure Preparation and Innovation Facility (IPIF). The Project will support the two key agencies responsible for national public infrastructure investments, namely the Department of Transportation (DOTr) and the Department of Public Works and Highways (DPWH). Specifically, the project will assist the two implementing agencies (implementing agencies) in (i) making sound and objective investment decisions; (ii) providing robust project pipelines; and (iii) helping fill the infrastructure gap of the country. The project is estimated to cost $160 million; of which $100 million will be financed by ADB. The government will finance $60 million to finance part of the consulting services as well as taxes and duties during implementation. The major expenditure items, representing approximately 87% of the total cost (including taxes and duties), will comprise consulting services to support the government project preparation and implementation activities for public sector investments.

2. **Status of the Infrastructure in the Philippines.** Despite steady economic improvement, the quality of infrastructure of the Philippines continues to lag significantly behind other emerging Southeast Asian countries. In 2016–2017, the Philippines ranked 112th out of 138 countries in terms of quality of its infrastructure. Less than optimal infrastructure leads to higher economic cost, which in turn, undermines business potential and economic opportunities, especially in rapidly growing urban areas.

3. The poor state of the Philippines infrastructure is attributed to a number of factors including: (i) inadequate infrastructure investment; (ii) lack of inter-agency coordination; (iii) inadequate or incomplete infrastructure plans and implementation programs; (iv) restricted access to international expertise and constrained technical and management know-how in project preparation and implementation; and (v) reduced sustainability due to lack of resources for operation and maintenance. Complex government approval process and limited and difficult coordination between the two main agencies responsible for infrastructure (DOTr and DPWH) and other key agencies also impedes project preparation and implementation. As a result, infrastructure projects are often not delivered as planned due to either poor project formulation or inadequate project implementation, or both. Delays in safeguard compliance, procurement, and land acquisition, as well as poor project management systems also contribute significantly to delays and higher cost of infrastructure projects.

4. **Rationale.** Against this backdrop, the Project is expected to enable DOTr and DPWH to plan, execute and implement public infrastructure projects more efficiently and effectively by addressing some of the key constraints to infrastructure planning, design, and implementation, and by providing access to international sources of innovation, expertise, advice, and best practices. The project will support both DOTr and DPWH to undertake project preparation work for priority infrastructure projects to be financed by official development assistance (ODA) or through the government's internal resources.

5. The government's socioeconomic agenda aims to increase public infrastructure spending from 2.6% of gross domestic product in 2015 to 7% by 2022 representing approximately $14.5 billion annually. Priority infrastructure investments identified by the government for preparation under the project include national expressways, inter-island bridges, flood control structures, airports, subways, urban transportation and railways. Recent large ODA programs of assistance have been pledged from the governments of the People's Republic of China, Japan, and the

Republic of Korea, in support of the government priority investments to accelerate public infrastructure development as well as to expand its public private partnership (PPP) project program.

6. To more effectively use the pool of ODA and domestic funds pledged and budgeted, and to realize the goal of improving the efficiency of infrastructure pre-investment activities the Project will provide financing for consulting services to accelerate progress in infrastructure delivery for inclusive and sustainable socioeconomic development through improved preparation of public infrastructure projects. The Project comprises four outputs:

1. Output 1: Preparation of Roads and Bridges Projects

7. Under this output, support will be provided to DPWH in planning and preparation of roads and bridges investment projects, including: (i) preparation of prefeasibility and feasibility studies, including economic and financial analysis; (ii) preparation of preliminary engineering studies; (iii) preparation of detailed engineering design; (iv) preparation of procurement documents and assistance in the tendering process; and v) preparation of social and environmental safeguard assessment studies. Selection of consultants for Output 1 is the object of a separate request for proposal (RFP).

2. Output 2: Preparation of Water Projects

8. Under this output, support will be provided to DPWH in planning and preparation for flood control investment projects including (i) preparation of river basin master plans including identification of priority flood control and drainage improvement works; (ii) preparation of feasibility study, including economic and financial analysis; (iii) preparation of preliminary design studies; (iv) preparation of detailed engineering design of priority infrastructures; (v) preparation of procurement documents and assistance in the tendering process; and (vi) preparation of social and environmental safeguard assessment studies. An indicative list of water investment projects to be the object of preparation under this output is provided in Table A3.25. While all projects in Table A3.25 are considered priority investments, the government may substitute any or all of the listed project with other water or flood protection projects within or outside the initial regions. Additional details of each project are available through the ADB CMS. This terms of reference (TOR) and RFP are for the recruitment of consultants for Output 2 only.

Table A3.25 – Indicative List of Water Projects

Project Name	Required Action	Estimated Investment Cost
Apayao-Abulug River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area of 3,372 km^2 and a river length of 175 km	PhP 4.869 billion (~ $97.4 million)
Abra River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area of 5,125 km^2 and a river length of 181 km	PhP4.861 billion (~ $97.4 million)
Jalaur River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area of 1,503 km^2 and a river length of 123 km	PhP5.292 billion (~ $105.8 million)
Buayan-Malungon River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area 1,435 km^2 and a river length of 64 km	PhP858 million (~ $17.2 million)

Project Name	Required Action	Estimated Investment Cost
Agus River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area of 1,645 km^2 and a river length of 36 km.	PhP1.109 Billion (~S$22.2 million)
Tagum-Libuganon River Basin	Preparation of master plan, feasibility study and DED of priority infrastructures for a drainage area of 3,064 km^2 and a river length of 89 km	PhP5.729 Billion (~ $114.6 million)

DED = detailed engineering design; km = kilometer; km^2 = square kilometre.

3. Output 3: Preparation of Transportation Projects

9. Under this output, support will be provided to DOTr in the planning and preparation of rail, public transport, and port and airport investment projects, including: (i) preparation of prefeasibility and feasibility studies including economic and financial analysis; (ii) preparation of preliminary design studies; (iii) preparation of detailed engineering design; (iii) preparation of procurement documents and assistance in the tendering process; and (iv) preparation of social and environmental safeguards assessment studies. Selection of consultants for Output 3 is the object of a separate RFP.

4. Output 4: Improvement of Project Development Management System

10. Under this output, assistance will be provided toDOTr, DPWH and the National Economic Development Authority (NEDA) for development and implementation of project management and monitoring systems. The Project will also support capacity building of the agencies through preparation of documentation and manuals for project preparation activities to ensure sustainability of knowledge transfer and to embed project management systems in DOTr, DPWH, and NEDA. Additional expertise may also be recruited under Output 4 to review work carried out by the consultants under Outputs 1, 2 and 3, particularly when the assignment consists or requires advanced technologies and expertise which are not currently available from within the client's organization. Selection of consultants for Output 4 will be the object of separate recruitment and is not covered by this TOR and RFP.

B. Consulting Assignment

11. The government recognizes the need for consultants to be mobilized as soon as possible after loan effectiveness and to expedite the recruitment process and ensure prompt implementation of the priority infrastructure investments. For this reason, the government has requested ADB to carry out the consultant selection on its behalf under advance action. The government also wishes to ensure that world class consultants with experience and qualifications in advanced technologies be recruited to provide appropriate innovative technologies and help build high quality climate resilience infrastructures more efficiently. In line with this objective, a consulting firm will be recruited for Output 2 with a contract valued at approximately $31.36 million (exclusive of taxes and contingencies).

1. Implementation Arrangements

12. DPWH thru its UPMO Flood Control Management Cluster will be the implementing agency responsible for the day-to-day management of the project outputs of the consultant under Output 2.

13. The recruitment of the consulting firms is being undertaken by ADB in accordance with the ADB Guidelines on the Use of Consultants (2013, as amended from time to time) and it is planned that the contract will be signed with DPWH upon effectiveness of the technical assistance loan expected on January 2018.

14. The consultant will be recruited following quality-based selection procedures with full technical proposal. The successful proposal will constitute the basis for a retainer contract to be signed between DPWH and the Consultant for the entirety of the works to be carried out under Output 2. Detailed TORs will be prepared by the DPWH UPMO-Flood Control Management Cluster for each assignment under the contract and the consultant will be requested to submit detailed technical and financial propositions for each assignment. The propositions including proposed approach and methodology, work plan and technical and financial information, will be reviewed by the implementing agencies and, if satisfactory, the consultant will be requested to carry out the assignment at an agreed price generally on a lump sum basis. This process has been chosen to ensure expeditious implementation of the project by reducing the number of consultants to be selected and therefore eliminating the repetitive and lengthy selection process for each assignment.

2. Consulting Services

15. The key objective of the consulting services is to assist the government in planning and preparation of public sector priority infrastructure investments. For each priority investment sub-project the consultant may be required to carry out the following activities: (i) pre-feasibility studies (which may include preparation of master plans or other studies); (ii) feasibility studies; (iii) preliminary design studies and surveys; (iv) detailed engineering design; (v) preparation of bidding documents and assistance to the implementing agencies in the tendering process; and vi) preparation of consultant selection documents and assistance in the recruitment of construction supervision consultants. The consultant may be required to carry out any or all of those activities for each sub-project, or in cases where some or all of the activities have been completed or partly completed by a third party, the consultant may be required to perform a due diligence review for the activities that have been carried out to ensure that the outputs meet the highest technical standards as well as conformance to norms and regulations of the government and the financing institution including social and environmental safeguards. The exact scope of each assignment as well as the required outputs will be described in the detailed TORs and request for proposition for each assignment.

3. Outputs

16. Under each assignment, the consultants will be required to deliver specific outputs. The outputs will be described in the detailed TORs for each assignment and will depend on whether the consultants will be required to carry out the activity or carry out due diligence review of the output of a third party. For each type of activity, the typical required outputs may be as follows:

a. Pre-feasibility Study (Master Plan)

17. The consultant will prepare a master plan for flood control and drainage investments in the identified river basins. In cases where the Master Plan has already been carried out by a third party, the consultant will carry a due diligence review of the master plan prepared by the third party. If the due diligence review reveals insufficient or inadequate analysis, the consultant will be required to carry out additional studies and analysis and update/upgrade the master plan to meet the highest standards as well as the norms and regulations of the government and the financing

institution including social and environmental safeguards. The master plan will include but shall not be limited to:

(i) Hydro-topographic survey (Master Plan level);
(ii) Hydrologic and hydraulic analysis;
(iii) Sediment transport analysis;
(iv) Formulation of river improvement plan (sabo, coastal protection works and multi-purpose dams, if necessary);
(v) Establishment of alternative structural measures
(vi) Identification of key flood control and urban drainage infrastructures;
(vii) Social gender analysis
(viii) General Environmental Impact Assessment;
(ix) Preliminary design concept of key flood control and urban drainage infrastructures; and
(x) Preliminary cost estimates of key flood control infrastructures.

b. Feasibility Study

18. The consultant will prepare a feasibility study report for flood control and drainage investments in the identified river basins. In cases where the feasibility study has already been carried out by a third party, the consultant will carry out a due diligence review of the feasibility study carried out by the third party. If the due diligence review reveals insufficient or inadequate analysis, the consultants will be required to carry out additional studies and analysis and update/upgrade the feasibility study to meet the highest standards as well as the norms and regulations of the government and the financing institution including social and environmental safeguards. The feasibility study should contain a detailed assessment of the technical as well as economic and financial viability of infrastructures identified in the master plan. Specifically, the feasibility study will include but shall not be limited to the following:

(i) Hydro-topographic survey (feasibility level)
(ii) Flood inundation and damage assessment;
(iii) Population growth projections including projected changes in rural and urban population distribution;
(iv) Determination of socio-economic characteristics of the beneficiaries and pattern of distribution of benefits;
(v) Value engineering;
(vi) Projected cost of O&M;
(vii) Environmental, social and economic analysis;
(viii) Land Acquisition Plan and Resettlement Action Plan;
(ix) Identification of social impact on vulnerable groups, women and children, and minorities;
(x) Estimation of land acquisition and resettlement costs;
(xi) Estimation of cost of the project;
(xii) Financial and economic analysis (FIRR and EIRR);
(xiii) Implementing arrangement and
(xiv) Funding source

c. Preliminary Engineering Design Studies

19. Prior to detailed engineering design, the consultant may be required to carry out and/or contract for carrying out all necessary surveys and studies that have been identified by the Feasibility Study and are required for the detailed design of the project, including but not limited to:

(i) Preliminary survey and studies/assessment;
(ii) Preliminary engineering design;
(iii) Hydro-topographic survey;
(iv) Geological and geotechnical investigations;
(v) Initial environmental examination;
(vi) Social impact assessment;
(vii) Indigenous people assessment; and
(viii) Gender impact assessment.

d. Detailed Engineering Design

20. The consultant may be required to carry out, detailed engineering design including but not limited to the following tasks:

(i) Hydrologic assessment;
(ii) Hydraulic design;
(iii) Seismic evaluation studies;
(iv) Slope stability analysis;
(v) Seepage analysis;
(vi) Sediment transport analysis;
(vii) Geological and geotechnical analysis;
(viii) Design analysis report;
(ix) Structural and earthwork design;
(x) Design parameters for seismic conditions;
(xi) Environmental Impact Assessment;
(xii) Environmental Management Plan;
(xiii) Resettlement action plan;
(xiv) Gender action plan; and
(xv) Land acquisition plan.

21. **Design-Build Contracts.** In some cases, it may prove more economical and expeditious to carry out a sub-project on a design-build basis. In such cases, the detailed engineering design will be carried out by the design-build contractors. The consultant however may be required to prepare conceptual design and design-build bidding documents and assist the implementing agencies in the evaluation of the tenders (see below) related to such contracts.

e. Preparation of Bidding Documents

22. Following detailed engineering design, the Consultants will be required to prepare bidding documents ready for tendering of flood control and drainage investment structures, and assist the implementing agencies in the bidding process and evaluation of tenders. Bidding will be carried out following international competitive bidding or national competitive bidding procedures for construction of civil works. Preparation of bidding documents may include but not be limited to the following:

(i) Invitation to bid;
(ii) Detailed design drawings;
(iii) Detailed bidding drawings;
(iv) Technical specifications;
(v) Bidding documents;
(vi) Assistance in post-qualification of bidders;
(vii) Assistance in preparation of bid evaluation report for submission to the BAC;

(viii) Assistance in resolution of award and notice of award; and
(ix) Other pertinent documents related to pre-construction activities.

23. **Design-Build Contracts.** In case it is determined that a contract is to be awarded on a design-build basis, the Consultant will be required to prepare bidding documents for a design build contract and provide assistance to the implementing agencies in the evaluation of tenders and award of contract.

f. Selection of Construction Supervision Consultants

24. In parallel to the preparation of bidding documents and the bidding of civil works contracts, the consultant may be required to assist the implementing agencies in the selection of consultants for construction supervision. This may include but not be limited to the following:

(i) Preparation of criteria for evaluation of expressions of interest (EOIs);
(ii) Guidance in the evaluation of EOIs and preparation of shortlist;
(x) Preparation of TORs for construction supervision consultants;
(xi) Preparation of Request for Proposals;
(xii) Preparation of technical evaluation criteria;
(xiii) Guidance in the evaluation of technical and financial proposals; and
(xiv) Guidance during contract negotiations.

g. Training and Transfer of Knowledge

25. In parallel to the other outputs, the consultant may be required to prepare curricula and conduct trainings and technology transfer upon the request of the implementing agency on, but not limited to the following:

(i) Flood control master planning;
(ii) Sabo engineering;
(iii) Coastal engineering;
(iv) Dam engineering;
(v) Water resources engineering;
(vi) Integrated water resources management;
(vii) Value engineering; and
(viii) Recent technological developments in the field of flood control, urban drainage, sabo, coastal engineering and dam engineering.

C. Key Required Expertise

26. It is expected that the Consultant will be required to provide the following key expertise at various times during the assignment. Other expertise may also be required and will be determined as individual assignments or projects will become more clearly defined.

Table A3.26 – Key Required Expertise

Consultant	Minimum Qualifications	Consultant	Minimum Qualifications
Senior Integrated Water Resources Management Specialist	15 years	Senior River Structural Engineer	15 years
		Senior Mechanical Engineer	15 years
		Senior Electrical Engineer	15 years
Senior Hydrologist	15 years	Senior Material Engineer	15 years
Senior Flood Control Engineer	15 years	Senior Foundation Engineer	15 years
		Senior Geotechnical/Soil Engineer	15 years
Senior Drainage Engineer	15 years	Senior Environmental Specialist	15 years
Senior Economist	15 years	Senior Climate Change Adaptation Specialist	15 years
Senior Dam and Flood Control Engineer	15 years		
		Senior Sociologist	10 years
Senior Geologist/ Geologist Seismic	15 years	Senior Gender Specialist	10 years
		Senior Land Acquisition/ Resettlement Specialist	10 years
Senior Geodetic Engineer	15 years		
Senior Geotechnical Engineer	15 years	Senior Procurement Specialist	10 years
		Senior Seismic Design Engineer	15 years

27. These key experts will not necessarily be part of the core team (as defined under para. 29) but will be expected to lead or be responsible to oversee the work of sub-team of experts during the various assignments. During the assignments, it may be necessary for the Consultant to bring additional external expertise required with prior approval of the client.

D. Proposal Preparation

28. The shortlisted consulting firms are requested to prepare a detailed description of how they propose to deliver the outputs of the contract in the section of their proposal called “Approach and Methodology.” In this narrative, firms should clearly explain how they will achieve the outputs and defined deliverable and include detailed information on key and non-key experts that will comprise the core project team and their proposed input. The consultant must also describe the experience of the firm or joint venture, and core team key experts in the Philippines or similar geopolitical environment.

29. **Core team of experts.** The Consultant must provide a minimum of 54 person months of key experts (Core Team) to be posted at the PMU for the duration of the contract. The core team, including a full-time Project Management Specialist/Team Leader, a Senior Flood Control Engineer, and Senior Drainage Engineer, which will be constituted preferably with permanent employees of the consulting firm or joint venture or experts working exclusively for the firm or joint venture member, with significant experience with the firm in relevant field of activities. The team will be based at the implementing agencies office in Pasig but may be required to travel to project sites frequently. Only one curriculum vitae must be submitted for each key and non-key expert included in the proposal. Only the curriculum vitaes of key experts will be scored as part of the technical evaluation of proposals. The curriculum vitaes of non-key experts will not be scored, however, ADB will review the individual curriculum vitaes and may reject the curriculum vitaes of non-key experts if the experience and qualification of the experts are considered inadequate or substandard. The overall composition of the core team, the credentials of non-key experts, and the design of the team as a whole – including the appropriateness of the level of inputs (home, field, total) – will be taken into consideration in the evaluation of Quality of Approach and Work Plan and Personnel Schedule criteria.

30. All positions under the contract, both key and non-key experts for the core team, must be included and budgeted for in the financial proposal in accordance with the person-month allocation required for each as defined by the consultant's proposed approach and methodology and work plan. The budget for the key and non-key experts to be appointed for each individual sub-project assignments will be the object of separate propositions during implementation and will be paid from the unallocated funds category reserved under the contract for those sub-project assignments. Likewise, travel costs of the core team to cover expenses of travel between the implementing agencies headquarters and the project sites, which cannot be determined until the project sites are selected, will be allocated from unallocated funds during implementation.

31. The proposal should also include a confirmation of availability of key experts listed in Table A3.5 that may be assigned senior positions in various sub-project assignments. The qualifications and expertise of those key experts will be a key consideration in the evaluation of the qualification of the firm or joint venture.

1. Key Experts (Core Team)

32. The consultant has full discretion over the composition and structure of the proposed core team of experts and is responsible to provide all necessary expertise and qualifications to deliver the required output of the assignment. However, as a minimum requirement, the team must comprise 54 person months of input for 3 key positions including: (i) Project Management Specialist/Team Leader (42 person-months); (ii) Senior Flood Control Engineer (6 person-months); and (iii) Senior Drainage Engineer (6 person-months) (Table A3.27). The person-months indicated in the table below are strict minimum and the consultant may propose longer inputs if it is deemed necessary to meet the objectives of the approach and methodology.

Table A3.27 – Key Expert Qualifications

Position	Minimum Person-Months	Requirements
Project Management Specialist/Team Leader	42	• Advanced degree in engineering or other relevant field; • Minimum 20 years of professional experience related to preparation of master plans/feasibility studies/detailed engineering design of various infrastructures; • Minimum 15 years in professional experience as Project Manager/Team Leader of development studies in flood control and/or other water infrastructures
Senior Flood Control Engineer	6	• Advanced degree in engineering or other relevant field; • Minimum 15 years in professional experience related to planning and designing major flood control projects
Senior Drainage Engineer	6	• Advanced degree in engineering or other relevant field; • Minimum 15 years of professional experience related to planning and designing major urban drainage projects

33. **Non-Key Experts**. In addition to the mandatory key experts described in Table A3.6, the consultant is expected to provide non-key experts for the core team to ensure all aspects of the work can be undertaken and all deliverables and reports are completed in accordance with the

implementation schedule. All non-key experts must have adequate qualifications and experience in a relevant field with a minimum of 5 years of experience.

34. In addition, the consultant is required to provide technical and administrative staff necessary for the core team to achieve its role and objectives. The proposal must provide a list of technical and administrative personnel to be provided. The consultant is responsible to ensure that the technical and administrative personnel is sufficient to effectively carry out its functions. The cost of technical and administrative staff may be included in the financial proposal, but it is understood that if additional staff is required during implementation of the contract to meet its objective and schedule, the cost of such additional staff will be borne by the consultant and will not be compensated.

35. The project list in Appendix 1 is indicative. While all projects listed are considered priority investments, the government may substitute any of the listed projects with other flood control projects within or outside the initial regions.

2. Specific Tasks of Key Experts

a. Project Management Specialist/ Team Leader

36. The Project Management Specialist/Team Leader will be responsible for:
- (i) overall liaison with the implementing agencies;
- (ii) preparation of propositions for each individual assignment and negotiations with the implementing agencies;
- (iii) coordination of the input and output of the sub-teams of consultants (both in the field and home based) involved in the individual assignments;
- (iv) quality control of work carried out and output delivered by the sub-teams;
- (v) overall management and administration of the contract; and
- (vi) reporting to the implementing agencies on progress of work being carried out by the core team and the sub-teams.

37. The Project Management Specialist/Team Leader must have an advanced degree from a recognized institution in Engineering or other relevant field and have at least 20 years of professional experience including 15 years in management of development studies and projects in flood control and/or other water infrastructures. Experience in the Philippines or similar geopolitical environment would be considered an asset.

b. Senior Flood Control Engineer

38. The Senior Flood Control Engineer will be responsible for:
- (i) advising the Team Leader in the preparation of propositions for flood control subprojects;
- (ii) monitoring the work and output of the sub-teams involved in carrying out flood control subprojects; and
- (iii) advising the Team Leader and the implementing agencies on matters related to flood control design and construction.

39. The Senior Flood Control Engineer will have an advanced degree from a recognized institution in Engineering or other relevant field and have at least 20 years of professional experience including 15 years in feasibility studies, planning, and engineering design of major

flood control or other water structures. Experience in the Philippines or similar geopolitical environment would be considered an asset.

c. Senior Drainage Engineer

40. The Senior Drainage Engineer will be responsible for:

(i) advising the Team Leader in the preparation of propositions for drainage subprojects;
(ii) monitoring the work and output of the sub-teams involved in carrying out drainage subprojects; and
(iii) advising the team leader and the implementing agencies on matters related to drainage design and construction.

41. The Senior Drainage Engineer will have an advanced degree from a recognized institution in Engineering or other relevant field and have at least 20 years of professional experience including 15 years in feasibility studies, planning, and engineering design of drainage structures. Experience in the Philippines or similar geopolitical environment would be considered an asset.

3. Services Provided by the Employer

42. DPWH will assign relevant counterpart staff to the project on a full-time basis. The Government will provide office space in Pasig City for the core team. DPWH shall assist in obtaining the necessary permits, visas and other documents necessary by the consultant to carry out the services under the contract. DPWH will facilitate field visits and arrange meetings with relevant authorities and agencies. In addition, DPWH shall coordinate with the respective authorities responsible for maintenance of peace and order along project location when and if necessary, upon request of the consultant. Any other office requirements including telephone connection, internet connection, equipment and consumables, and transport will be provided or arranged by the consultant. The government will pay or cover through other allowed means in line with the Philippine's taxation framework, the applicable Philippine taxes and duties on the contract on behalf of the consultant. Additional information regarding the tax law in the Philippines can be found at the government of the Philippines website (https://www.bir.gov.ph/index.PhP/tax-code.html).

4. Equipment

43. The proposal should identify the critical element of equipment that will be required by the core team. In addition, the consultant will be requested to procure equipment to assist the implementing agency and the sub-project teams in their assignments. The equipment and supplies for the sub-project teams will be the object of propositions for each sub-project and should not be included in the core team requirements. All equipment and assets purchased under the project and paid by the project work will adhere to ADB's Procurement Policy (2017, as amended from time to time) and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time), and shall remain in the possession of the government. Upon completion of the project, these assets will be turned over to the government.

E. Request for Proposition

44. As part of its proposal, the consultant is required to prepare propositions for the attached sub-projects. Each proposition should contain both technical and financial components. This will allow for early mobilization, not only of the core team, but also the sub-project teams towards

meeting the objective of expediting implementation of the project. The technical component shall include the detailed approach and methodology, curriculum vitaesof key and non-key experts, as well as proposed work plan and personnel schedule for the sub-project. The financial component shall include all costs associated with the sub-project.

45. For each of the sub-projects where a request for proposition will be issued during contract implementation, the Consultant shall include a minimum of two and maximum of three curriculum vitaes of experts that may be deployed as team leader for the sub-project(s).

F. Evaluation of Proposals

46. The evaluation of proposals will follow the evaluation criteria provided in the RFP. The approach and methodology will consider both how the consultant envisages the use of the core team as well as the responses to the propositions/sub-projects included in this RFP. Furthermore, in the evaluation of the Quality of Methodology, Work Program and Personnel Schedule, consideration will be given on whether the overall team composition (key and non-key experts) is appropriate to meet the TOR and how it matches the proposed methodology. The extent by which proposed key and non-key experts are full time staff of the consultant will also influence the evaluation of the Quality of Methodology, Work Program and Personnel Schedule. The qualification of the firm will, in addition to previous experiences on similar projects, take into consideration the curriculum vitaes provided for potential team leader/s of subsequent sub-project/s.

TERMS OF REFERENCE FOR TRANSPORTATION CONSULTANTS

A. Project Background

47. The Government of the Philippines has requested Asian Development Bank (ADB) assistance for a technical assistance loan for Infrastructure Preparation and Innovation Facility (IPIF). The project will support the two key agencies responsible for national public infrastructure investments, namely the Department of Transportation (DOTr) and the Department of Public Works and Highways (DPWH). Specifically, the project will assist the two implementing agencies (implementing agencies) in (i) making sound and objective investment decisions; (ii) providing robust project pipelines; and (iii) helping fill the infrastructure gap of the country. The project is estimated to cost $160 million, of which $100 million will be financed by ADB. The government will finance $60 million to finance part of the consulting services as well as taxes and duties during implementation. The major expenditure items, representing approximately 87% of the total cost (including taxes and duties), will comprise consulting services to support the government's project preparation and implementation activities for public sector investments.

48. **Status of the Infrastructure in the Philippines.** Despite steady economic improvement, the quality of infrastructure of the Philippines continues to lag significantly behind other emerging Southeast Asian countries. In 2016–2017, the Philippines ranked 112th out of 138 countries in terms of quality of its infrastructure. Less than optimal infrastructure leads to higher economic cost, which in turn, undermines business potential and economic opportunities, especially in rapidly growing urban areas.

49. The poor state of the Philippines infrastructure is attributed to a number of factors including: (i) inadequate infrastructure investment; (ii) lack of inter-agency coordination; (iii) inadequate or incomplete infrastructure plans and implementation programs; (iv) restricted access to international expertise and constrained technical and management know-how in project preparation and implementation; and (v) reduced sustainability due to lack of resources for operation and maintenance. Complex government approval process and limited and difficult coordination between the two main agencies responsible for infrastructure (DOTr and DPWH) and other key agencies also impedes project preparation and implementation. As a result, infrastructure projects are often not delivered as planned due to either poor project formulation or inadequate project implementation, or both. Delays in safeguard compliance, procurement, and land acquisition, as well as poor project management systems also contribute significantly to delays and higher cost of infrastructure projects.

50. **Rationale.** Against this backdrop, the project is expected to enable DOTr and DPWH to plan, execute and implement public infrastructure projects more efficiently and effectively by addressing some of the key constraints to infrastructure planning, design, and implementation, and by providing easier access to international sources of innovation, expertise, advice, and best practices. The project will support both DOTr and DPWH to undertake project preparation work for priority infrastructure projects to be financed by official development assistance (ODA) or through the government's internal resources.

51. The government's socioeconomic agenda aims to increase public infrastructure spending from 2.6% of gross domestic product in 2015 to 7% by 2022 representing approximately $14.5 billion annually. Priority infrastructure investments identified by the government for preparation under the project include national expressways, inter-island bridges, flood control structures, airports, subways, urban transportation and railways. Recent large ODA programs of assistance have been pledged from the governments of the People's Republic of China, Japan, and the

Republic of Korea, in support of the government priority investments to accelerate public infrastructure development as well as to expand its public private partnership (PPP) project program.

52. To more effectively use the pool of ODA and domestic funds pledged and budgeted, and to realize the goal of improving the efficiency of infrastructure pre-investment activities the project will provide financing for consulting services to accelerate progress in infrastructure delivery for inclusive and sustainable socioeconomic development through improved preparation of public infrastructure projects. The project comprises four outputs:

1. Output 1: Preparation of Roads and Bridges Projects:

53. Under this output, support will be provided to DPWH in planning and preparation of roads and bridges investment projects, including: (i) preparation of pre-feasibility and feasibility studies, including economic and financial analysis; (ii) preparation of preliminary engineering studies; (iii) preparation of detailed engineering design; (iv) preparation of procurement documents and assistance in the tendering process; and v) preparation of social and environmental safeguard assessment studies. Selection of consultants for Output 1 is the object of a separate request for proposal (RFP).

2. Output 2: Preparation of Water Projects:

54. Under this output, support will be provided to DPWH in planning and preparation for flood control investment projects including (i) preparation of river basin master plans including identification of priority flood control structures; (ii) preparation of feasibility study, including economic and financial analysis; (iii) preparation of preliminary design studies; (iv) preparation of detailed engineering design of priority infrastructures; (v) preparation of procurement documents and assistance in the tendering process; and (vi) preparation of social and environmental safeguard assessment studies. Selection of consultants for Output 2 is the object of a separate RFP.

3. Output 3: Preparation of Transportation Projects

55. Under this output, support will be provided to DOTr in the planning and preparation of rail, public transport, and port and airport investment projects, including: (i) preparation of pre-feasibility and feasibility studies including economic and financial analysis; (ii) preparation of preliminary design studies; (iii) preparation of detailed engineering design; (iii) preparation of procurement documents and assistance in the tendering process; and (iv) preparation of social and environmental safeguards assessment studies. The indicative list of transportation projects to be the object of this output is provided in Table A3.27. While all projects in Table A3.27 are considered priority investments, the government may substitute any or all of the listed project with other transportation projects within or outside the initial regions. Additional details of each project are available through the ADB CMS. This terms of reference (TOR) and RFP is for the recruitment of consultants for Output 3 only.

Table A3.27 – Indicative List of Transportation Projects

Project Name	Required Action	Estimated Investment Cost
PNR South Commuter	Due diligence review of feasibility study, preparation of design-build bidding documents, for the reconstruction of a 72-km standard gauge, dual-track, electrified railway between Manila and Los Baños, Laguna	PhP133.7 billion (~ $2.7 billion)
PNR South Long Haul	Due diligence review of feasibility study, preparation of design-build bidding documents for a 581-km standard gauge, single-track, non-electrified railway between (a) Los Baños and Legazpi, Albay, (b) Calamba and Batangas, and (c) Legazpi and Matnog, Sorsogon	PhP151 billion (~ $ 3.0 billion)
Mindanao Railway: Tagum-Davao City-Digos Segment	Due diligence review of master plan, feasibility study, preparation of design-build bidding documents for a 102-km standard gauge, single-track, non-electrified railway between Tagum, Davao City, and Digos	PhP36 billion (~ $640 million)
Central Mindanao Airport	Airport location study, due diligence review of existing feasibility study, and preparation of DED and bidding documents for the optimum development of existing airport facilities	For Turbo Prop Operation – PhP1.50 billion (~ $30 million) For Jet Operation – PhP2.5 billion (~ $50 million) (final scope and cost of project subject to result of feasibility study/master plan Study)
National Greenways and Non-Motorized Transport Development Project	Due diligence review and preparation of feasibility study, DED and bidding documents to develop regulations for open space, pedestrian access, and non-motorized transport infrastructure in Metro Manila, Metro Cebu, Metro Davao, and selected secondary cities.	PhP10 billion (~ $200 million)
National Intelligent Transport System	Preparation of Nationwide Multi-modal ITS Master Plan; preparation of feasibility study and Design-Build bidding documents for the NITC and its components.	PhP19.3 billion (~ $386 million)

DED = detailed engineering design; ITS = Intelligent Transport System; km = kilometer; NITC = National Intelligence Transportation Center; PNR = Philippines National Railways; TEU = twenty-foot equivalent units;

4. Output 4: Improvement of Project Development Management System

56. Under this output, assistance will be provided to DOTr, DPWH and the National Economic Development Authority (NEDA) for development and implementation of project management and monitoring systems. The project will also support capacity building of the agencies through preparation of documentation and manuals for project preparation activities to ensure sustainability of knowledge transfer and to embed project management systems in DOTr, DPWH, and NEDA. Additional expertise may also be recruited under Output 4 to review work carried out by the consultants under Outputs 1, 2 and 3, particularly when the assignment consists or requires

advanced technologies and expertise which are not currently available within the client's organization. Selection of consultants for Output 4 will be the object of separate recruitment and is not covered by this TOR and RFP.

B. Consulting Assignment

57. The government recognizes the need for consultants to be mobilized as soon as possible after loan effectiveness and to expedite the recruitment process and ensure prompt implementation of the priority infrastructure investments. For this reason, the government has requested ADB to carry out the consultant selection on its behalf under advance action. The government also wishes to ensure that world class consultants with experience and qualifications in advanced technologies be recruited to provide appropriate innovative technologies and help build high quality climate resilience infrastructures more efficiently. In line with this objective, a consulting firm will be recruited for Output 3 with a contract valued at approximately $35.5 million (exclusive of taxes and contingencies).

1. Implementation Arrangements

58. DOTr will be the implementing agency for Output 3 and will establish a Project Management Unit (PMU) to be responsible for planning, and preparation of infrastructure projects will oversee the outputs of their respective consultants.

59. The recruitment of the consulting firm is being undertaken by ADB in accordance with the ADB Guidelines on the Use of Consultants (2013, as amended from time to time) and it is planned that the contract will be signed with DOTr upon effectiveness of the technical assistance loan expected on January 2018.

60. The consultant will be recruited following quality-based selection procedures with full technical proposal. The successful proposal will constitute the basis for a retainer contract to be signed between DOTr and the consultant for the entirety of the works to be carried out under Output 3. Detailed TORs will be prepared by the PMU for each assignment under the contract and the consultant will be requested to submit detailed technical and financial propositions for each assignment. The propositions including proposed approach and methodology, work plan and technical and financial information, will be reviewed by the implementing agencies and, if satisfactory, the consultant will be requested to carry out the assignment at an agreed price generally on a lump sum basis. This process has been chosen to ensure expeditious implementation of the project by reducing the number of consultants to be selected and therefore eliminating the repetitive and lengthy selection process for each assignment.

2. Consulting Services

61. The key objective of the consulting services is to assist the government in planning and preparation of public sector priority infrastructure investments. For each priority investment sub-project the consultant may be required to carry out the following activities: (i) pre-feasibility studies (which may include preparation of master plans or other studies); (ii) feasibility studies; (iii) preliminary design studies and surveys; (iv) detailed engineering design; (v) preparation of bidding documents and assistance to the implementing agencies in the tendering process; and vi) preparation of consultant selection documents and assistance in the recruitment of construction supervision consultants. The consultant may be required to carry out any or all of those activities for each sub-project, or in cases where some or all of the activities have been completed or partly completed by a third party, the consultant may be required to perform a due diligence review for

the activities that have been carried out to ensure that the outputs meet the highest technical standards as well as conformance to norms and regulations of the government and the financing institution including social and environmental safeguards. The exact scope of each assignment as well as the required outputs will be described in the detailed TORs and request for proposition for each assignment.

3. Outputs

62. Under each assignment, the consultant will be required to deliver specific outputs. These outputs will be listed and described in the detailed TORs for each assignment and will depend on whether the consultant will be required to carry out the activity or carry out due diligence review of the output of a third party. For each type of activity, the typical required outputs may be as follows:

a. Pre-feasibility Study

63. **Urban Transport.** The consultant will prepare master plans / pre-feasibility studies for urban transport investment projects. If the master plan/ pre-feasibility study has already been carried out by a third party, the consultant will be required to carry out due diligence review of the said master plan/ pre-feasibility study including a review of social and environmental safeguard issues. If the due diligence review of the master plan/ feasibility study reveals insufficient or inadequate analysis, the consultant will be required to carry out additional analysis and studies, and to update/upgrade the master plan/ pre-feasibility study to meet the highest technical standards as well as the norms and regulations of the government and the financing institution including social and environmental safeguards. The master plan will include but shall not be limited to:

(i) **For National Greenways and Non-Motorized Transport (NGNMT) Development**
   (a) Review of existing national policies, legislation and proposals for promoting greenways and non-motorized transport (NMT) development in the Philippines;
   (b) Identification of good examples of greenways and NMT development in the Philippines, assessment of key success factors and impediments to their expansion, and determine the best approach for supporting local government units (LGU) development of greenways and NMT;
   (c) Identification of two LGUs that will serve as the sub-project pilots, based on an objective set of selection criteria, and solicit LGU's formal agreement to participate in the project preparation process;
   (d) Consultation with relevant agencies of the government including Department of Interior and Local Government, DOF, NEDA, and selected LGUs, on alternative project designs and financing mechanisms, and prepare draft project guidelines, procedures and manual that can be used to promote LGU development of greenways and NMT; and
   (e) Design and conduct of workshops to help the pilot LGUs/cities prepare their sub-project conceptual plans and grant applications. The workshops should also highlight the importance of creating mechanisms for sustainable financing for maintenance of the new infrastructure.

(ii) For **National Intelligence Transportation Center (NITC)**
   (a) Intelligence Transportation System (ITS) vision report;
   (b) Enumeration and definition of ITS subsystems, which should include but not limited to: Road Transport Information and Management System, Passenger Information System, Automatic Fare Collection System, Traffic

Signal Management System, Automated Enforcement System (implemented through Automatic License Plate Recognition), Parking Management and Information System, Electronic Traffic Signs, Traffic Data Collection System, Electronic Toll Collection System, and Road Congestion Charging;

(c) Conceptualization of a multi-modal National Intelligent Transport Center (Road, Rail, Aviation, Maritime);
(d) Existing ITS subsystems inventory and assessment;
(e) Due diligence review of the PTIMC project, Metro Manila ITS proposals, and rail and BRT transportation management system;
(f) Institutional rearrangement or creation plan;
(g) ITS Policy Framework;
(h) General system architecture;
(i) Interoperability standards;
(j) Alignment with the e-Government Master Plan of the Department of Information and Communications Technology;
(k) Alignment with ISO/TC 204 standards;
(l) General timeline and execution plan; and
(m) Estimation of overall project cost.

b. Feasibility Study

64. **Rail.** The consultant will conduct a due diligence review of the feasibility studies for the identified railway projects. These feasibility studies have been conducted by third parties and include assessments of the technical, economic, financial viability, social and economic impacts of the proposed projects. If the due diligence reviews of the feasibilities studies reveal insufficient or inadequate analysis, the consultant will be required to carry out additional analysis and update the feasibility study to (i) ensure that the projects are ready and marketable for tendering and (ii) meet the international best practices and norms and regulations of the government and the financing institution, including social and environmental safeguards. The feasibility studies shall include but not be limited to the following:

(i) Demand Forecast;
(ii) Commercial Assessment;
(iii) Financial Assessment;
(iv) Economic Assessment;
(v) Technical Assessment;
(vi) Environmental Impact Assessment;
(vii) Land Acquisition and Resettlement Framework;
(viii) Social and Poverty Assessment;
(ix) Gender Impact Assessment;
(x) Legal-Regulatory Assessment;
(xi) Rolling Stock Specifications;
(xii) Operation simulation and operations plan;
(xiii) Maintenance Plan;
(xiv) Railway Management Plan;
(xv) Cost Estimation;
(xvi) Construction and Implementation Schedule;
(xvii) Transport Oriented Development potential assessment;
(xviii) Non-railway revenue and alternative financing assessment;
(xix) Procurement Strategy;
(xx) Concept Drawings and Designs;

(xxi) Cost Benefit/Value Engineering Analyses;
(xxii) Traffic impact assessment;
(xxiii) Utilities relocation/conflict plan; and
(xxiv) Depot Plan.

65. **Airport.** The consultant will be required to carry out a due diligence review of the feasibility study, including review and assessment of the technical as well as economic and financial viability of the proposed project and social and environment safeguard review. If the due diligence review of the feasibility study reveals insufficient or inadequate analysis, the consultant will be required to carry out additional analysis and studies, and to update/upgrade the feasibility study to meet the highest standards as well as the norms and regulations of the government and the financing institution including social and environmental safeguards. Specifically, the feasibility study shall include but not be limited to the following:

(i) Demand Forecast;
(ii) Commercial Assessment;
(iii) Financial Assessment (FIRR);
(iv) Economic Assessment (EIRR);
(v) Technical Assessment;
(vi) Inventory and Condition Assessment;
(vii) Population growth projections including projected changes in rural and urban population distribution;
(viii) Formulation of design options with comparison of cost-benefits analysis;
(ix) Evaluation of social benefits both quantifiable and non-quantifiable;
(x) Determination of socio-economic characteristics of the beneficiaries and pattern of distribution of benefits;
(xi) Quantitative financial risk analysis;
(xii) Projected cost of O&M and sustainability analysis;
(xiii) Identification of environmental impacts;
(xiv) Environmental, social and economic analysis;
(xv) Identification of social impact on vulnerable groups, women and children, and minorities;
(xvi) Estimation of land acquisition and resettlement costs;
(xvii) Updates on the topographical, geotechnical and aeronautical survey;
(xviii) Estimated cost of the project; and
(xix) Implementing Arrangement.

66. **Maritime Port.** The consultant may be required to carry out a full feasibility study or due diligence review of existing feasibility studies of identified port projects with respect to the technical, as well as economic and financial viability and social and environment safeguards. If the due diligence review of the feasibility study reveals insufficient or inadequate analysis, the consultant will be required to carry out additional analysis and studies and update/upgrade the feasibility study to meet the highest standards as well as the norms and regulations of the government and the financing institution. Specifically, the feasibility study /due diligence review shall include but not be limited to the following:

(i) Formulation of design options with comparison of cost-benefits analysis;
(ii) Evaluation of social benefits both quantifiable and non-quantifiable;
(iii) Determination of socio-economic characteristics of the beneficiaries and pattern of distribution of benefits;
(iv) Quantitative financial risk analysis;
(v) Projected cost of O&M and sustainability analysis;
(vi) Identification of environmental impacts;

(vii) Environmental, social and economic analysis;
(viii) Identification of social impact on vulnerable groups, women and children, and minorities;
(ix) Estimation of land acquisition and resettlement costs;
(x) Estimated cost of the project;
(xi) Financial and economic analysis (FIRR and EIRR);
(xii) Implementing Arrangement;
(xiii) Port traffic flow planning, engineering and management (internal/external) system analysis; and
(xiv) Strategic resettlement mechanism for formal and informal settlers.

67. **Urban Transport.** The feasibility study for projects for construction of ITS and Greenway projects should contain a detailed assessment of the technical as well as economic and financial viability of the proposed project as well as social and environment safeguards. Specifically, the feasibility study shall include but not be limited to the following:

(i) For **NGNMT Development**
  (a) Preparation of, in each of the two LGUs identified for pilot implementation, a Greenways/NMT sub-project conceptual study, technical feasibility analysis and cost estimates plus bidding documents for "Design and Build" contracts;
  (b) Refinement of the draft project guidelines, procedures and manual based on the experience with sub-project preparation in the two pilot LGUs; and
  (c) Based on the experience with the two pilot LGU pilot sub-projects, preparation of a full feasibility study covering the financial, social, technical, legal, and economic feasibility of the project, in sufficient detail for submission to NEDA Investment Coordination Committee for approval.

(ii) For **NITC**
  (a) Enumeration and identification of components for the ITS center subsystem;
  (b) NITC Subsystem specification;
  (c) NITC Subsystem capacity estimation;
  (d) Migration, adoption, or integration plans for other existing ITS subsystems;
  (e) Formulation of design options with comparison of cost-benefits analysis;
  (f) Quantitative financial risk analysis;
  (g) Projected cost of O&M and sustainability analysis;
  (h) Estimated cost of the project;
  (i) Financial and economic analysis (FIRR and EIRR);
  (j) Implementing arrangement;
  (k) Institutional and policy framework; and
  (l) NITC Structure including site identification and structure requirements.

c. Preliminary Engineering Design Studies

68. **Rail.** The consultant may be required to carry out and/or contract for carrying out additional surveys and studies that have been identified in the feasibility study and are required for a design-build tender to ensure an adequate and fair level of risk distribution to the contractor and the implementing agencies. This will include but shall not be limited to:

(i) Preliminary survey and studies/assessment;
(ii) Engineering design sufficient for a Design-Build tender;
(iii) Utilities survey and relocation/conflict plan;
(iv) Existing infrastructure survey;

(v) Land Parcellary Survey;
(vi) Traffic impact assessment;
(vii) Topographic surveys;
(viii) Hydro-topographic survey;
(ix) Hydrologic survey;
(x) Geological and Geotechnical investigations; and
(xi) Seismic hazard assessment.

69. **Airport.** Prior to detailed engineering design, the consultant may be required to carry out and/or contract for carrying out all necessary surveys and studies that have been identified in the feasibility study and are required for the detailed design of the project, including but not limited to:

(i) Preliminary survey and studies/assessment;
(ii) Preliminary engineering design;
(iii) Topographic surveys;
(iv) Hydrological survey
(v) Geological and Geotechnical investigations;
(vi) Aeronautical survey;
(vii) Land acquisition and resettlement framework;
(viii) Initial environmental examination;
(ix) Social impact assessment;
(x) Indigenous people assessment; and
(xi) Gender impact assessment.

70. **Maritime Port.** Prior to detailed engineering design, the consultant may be required to carry out and/or contract for carrying out all necessary surveys and studies required for the detailed design of the project, including but not limited to:

(i) Due diligence review of existing master plans for identified port projects including site layout/site development with the designed port facilities, incorporating port operations/processes that ensure the most optimal flow of cargo in and out of the port and back up area;
(ii) Site analysis plans;
(iii) Soil investigations;
(iv) Geological and geotechnical analysis;
(v) Hydrographic surveys (pre-dredging survey, progress survey, post-dredging survey) to quantify the requirements of dredging and requirements for the reclamation site
(vi) Accretion and erosion simulation studies;
(vii) Environmental impact assessment;
(viii) Resettlement action plan;
(ix) Gender action plan;
(x) Internal/external port traffic flow/circulation plan;
(xi) Determination of appropriate vessel design, together with wave height, wave force and current flow/directional analysis;
(xii) Indicative preliminary qualitative/quantitative analysis for port expansion potential; and
(xiii) Cost estimates.

71. **Urban Transport.** Prior to detailed engineering design, the Consultant may be required to carry out and/or contract for carrying out all necessary surveys and studies that have been identified in the Feasibility Study and are required for the detailed design of the project, including but not limited to:

(i) For **NGNMT Development**
- (a) Preliminary survey and studies/assessment of the pilot sites;
- (b) Survey of land uses, activities, and street network of the pilot sites;
- (c) Survey of NMT networks;
- (d) Topographic surveys;
- (e) Hydro-topographic survey;
- (f) Geological and Geotechnical investigations;
- (g) Land acquisition and resettlement framework;
- (h) Initial environmental examination;
- (i) Social impact assessment;
- (j) Concept Greenways Proposal for the pilot sites;
- (k) Preliminary engineering design for the pilot sites; and
- (l) Conceptual 3D Models and renderings for the pilot sites.

(ii) For **NITC**: A structure needs to be built to house the NITC, the Consultant may be required to carry out and/or contract for carrying out additional surveys and studies that have been identified in the feasibility study and are required to prepare the design-build bidding documents. This will include but shall not be limited to:
- (a) Preliminary site survey and studies/assessment;
- (b) Preliminary building architecture; and
- (c) Traffic impact study

d. Detailed Engineering Design

72. **Detailed Engineering Design.** For projects not to be awarded as design-build contracts, the Consultant may be required to carry out detailed engineering design. In case where a detailed engineering design has been carried out by a third party, the consultant may be required to carry out due diligence review of the detailed design and bidding documents. If the due diligence review reveals inadequate or incomplete detailed design, the consultant may be required to update/upgrade the detailed design and documents to meet the highest standards as well as the norms and regulations of the government and the financing institution including social and environmental safeguards. This will include but shall not be limited to the following tasks:

(i) **For Airport Projects:**
- (a) Detailed design report;
- (b) Conceptual design of landside and airside facilities to comply with ICAO, FAA and CAAP-MOSA requirements;
- (c) Hydrologic assessment;
- (d) Hydraulic design;
- (e) Aeronautical survey map;
- (f) Seepage analysis;
- (g) Sediment transport analysis;
- (h) Geological and geotechnical analysis;
- (i) Structural, and earthwork design;
- (j) Design parameters for seismic conditions;
- (k) Environmental impact assessment;
- (l) Environmental management plan;
- (m) Resettlement action plan; and
- (n) Gender action plan.

(ii) **For Maritime Port Projects:**
- (a) Review/Analysis/Necessary Enhancement (where applicable) of Related Studies/ Literatures Re: Development of the Study Area and

Review/Assessment/Necessary Enhancement (where applicable) of New Cebu International Container Port Feasibility Study;
(b) Traffic Study;
(c) Site Inspection;
(d) Detailed Topographic and Hydrographic Survey;
(e) Detailed Geologic and Hydrologic Survey;
(f) Detailed Geo-Technical Survey and Soil/Material Investigation/Testing;
(g) Detailed Design of Drainage/Utility System, etc.;
(h) Detailed Design of Deck Slab/Main Girder/Girder (main girder/girder arrangement, rebar specs/arrangement, cross-beam, etc.);
(i) Detailed Design of Port/Quay/Causeway/Pier/Embankment/Breakwater and Port Structures' Protection;
(j) Miscellaneous work activities/Safety Audit Design;
(k) Costings/Material Pricing;
(l) Construction Plan and Execution Plan;
(m) Tender Documents Preparation; and
(n) Project Implementation Program.

(iii) **For NGNMT Development:**
(a) Detailed design report;
(b) Hydrologic assessment;
(c) Hydraulic design;
(d) Seepage analysis;
(e) Sediment transport analysis;
(f) Geological and geotechnical analysis;
(g) Structural, and earthwork design;
(h) Design parameters for seismic conditions;
(i) Environmental and Social Assessment Reports;
(j) Resettlement action plan;
(k) Gender action plan; and
(l) Greenways Management Plan.

73. **Design-Build Contracts.** For projects to be carried out under design-build contracts, the detailed engineering design will be carried out by the design-build contractors. The Consultant however may be required to prepare conceptual design and design-build bidding documents and assist the implementing agencies in the evaluation of the tenders (see below).

e. Preparation of Bidding Documents

74. **Civil Works Contracts.** For projects other than design-build contracts, the consultant may be required to prepare bidding documents for civil works contracts and assist the implementing agencies in the bidding process and the evaluation of bids. Bidding will be carried out following international competitive bidding procedures or national competitive procedures for construction of civil works. Preparation of bidding documents will include but shall not be limited to the following:

(i) Invitation to bid;
(ii) Detailed design drawings;
(iii) Detailed bidding drawings;
(iv) Complete specifications;
(v) Bidding documents;
(vi) Preparation of bid evaluation criteria;
(vii) Post-qualification report of bidders;

(viii) Assistance in bid evaluation;
(ix) Bid evaluation report for submission to the Bids and Awards Committee (BAC);
(x) Resolution of award and notice of award; and
(xi) Other pertinent documents related to pre-construction activities.

75. **Design-Build Contracts.** For projects to be carried out under design-build contracts, the Consultant will be required to prepare conceptual design and bidding documents for design-build contracts and provide assistance to the implementing agencies in the evaluation of tenders and award of contract. Preparation of bidding documents shall include but not be limited to the following:

(i) **For Rail projects**
  (a) Detailed bid implementation plan;
  (b) Market-sounding;
  (c) Bidding documents;
  (d) Information Memorandum;
  (e) Bid Bulletins;
  (f) Bid Forms;
  (g) Execution copies of the contracts;
  (h) Pre-bid Conferences;
  (i) Virtual Data Room;
  (j) Prepare draft responses to bidder's queries;
  (k) Bid-related notices/requests and supplemental notices;
  (l) Necessary presentations to BAC and stakeholders;
  (m) Engineering designs for design-build tenders;
  (n) Concept Designs and Renders;
  (o) Detailed bidding drawings;
  (p) Complete specifications;
  (q) Minimum performance standards and specifications and key performance indicators;
  (r) Post-qualification report;
  (s) Bid evaluation support to the BAC and Technical Working Group;
  (t) Bid evaluation report for submission to the BAC;
  (u) Resolution of award and notice of award; and
  (v) Other pertinent documents related to pre-construction activities

(ii) **For Maritime Port** projects in addition to relevant items above:
  (a) Assistance with pre-qualification documents;
  (b) Assistance with pre-bid conference;
  (c) Assistance with bid opening and evaluation;
  (d) Assistance with bid award; and
  (e) Preparation of construction contract.

76. For **NITC**, if there is a need to construct a structure for the NITC, the project will be carried-out under a design-build contract. The consultant will be required to prepare conceptual design and bidding documents for the design-build contracts and provide assistance to the implementing agencies in the evaluation of tenders and award of contract.

f. Selection of Construction Supervision Consultants

77. In parallel to the preparation of bidding documents and the bidding of civil works contracts or design-build contracts, the consultant may be required to assist the implementing agencies in

the selection of consultants for construction supervision. This will include but shall not be limited to the following:

(i) Preparation of criteria for evaluation of expressions of interest (EOI);
(ii) Guidance in the evaluation of EOIs and preparation of shortlist;
(iii) Preparation of TORs for construction supervision consultants;
(iv) Preparation of RFPs;
(v) Preparation of selection criteria;
(vi) Guidance in the evaluation of technical and financial proposals;
(vii) Preparation of draft contract documents; and
(viii) Guidance during contract negotiations.

g. Training and Transfer of Knowledge

78. In parallel to the other outputs, the consultant may be required to prepare curricula and conduct trainings upon the request of the implementing agency on, but not limited to, the following topics:

(i) Transport master planning;
(ii) Urban master planning;
(iii) Logistics network planning;
(iv) Automated fare collection systems;
(v) Climate change resilient design;
(vi) Sustainable transport facility design;
(vii) Port management;
(viii) Demand studies;
(ix) Land reclamation;
(x) Recent technological developments in road, railway, aviation, maritime transportation;
(xi) Best practices in operations and maintenance of road, railway, aviation, maritime transport systems;
(xii) Cable car systems;
(xiii) Transit oriented developments; and
(xiv) Procurement strategy.

C. Key Required Expertise

79. It is expected that the consultant will be required to provide the following key expertise at various times during the assignment. Other expertise may also be required and will be determined as individual assignments or projects will become more clearly defined.

Table A3.28 – Key Required Expertise
Rail Projects

Consultant	Minimum Qualifications (years)	Consultant	Minimum Qualifications (years)
Senior Urban Planner	15	Senior Mechanical Engineer	15
Senior Transportation Planner	15	Senior Electrical Engineer	15
Senior Financial Analyst	15	Senior Communications and Control System Engineer	15
Senior Transport Economist	15		
Senior Railway Business Development Specialist	15	Senior Railway Signaling Engineer	15
		Senior Land Acquisition and Resettlement Specialist	15
	15		

Consultant	Minimum Qualifications (years)	Consultant	Minimum Qualifications (years)
Senior Train Operations Planner		Senior Railway Track Engineer	15
Senior Change Manager	10	Senior Rolling Stock Engineer	15
Senior Transportation Engineer	15	Senior Rolling Stock Designer	10
		Senior Architect (Stations)	10
Senior Structural/Civil Engineer	15	Senior Landscape Architect	10
		Senior Graphic Designer	10
Senior Construction Engineer	10	Senior Surveying and Remote Sensing	10
Senior Earthquake Engineer	15		
Senior Environmental Engineer	10	Senior Land Surveyor	10
		Senior Cartographer	10
Senior Geotechnical Engineer	10	Senior Estimator/Quantity Surveyor	10
Senior Geodetic Engineer	10		
Senior Sanitary Engineer	10	Senior Construction Surveyor	10
Senior Safety Engineer	10	Senior Gender Specialist	10
Senior Project Risk Analyst	10	Senior Social Development Specialist	10
Senior Procurement Specialist	15		
Senior Legal Expert (Transport Law)	15	Senior Automated Fare Collection Specialist	10
Senior Climate Change Adaptation Specialist	10	Senior Private Public Partnership Specialist	10
Senior Tunnel Engineer	15		

Table A3.29 – Key Required Expertise
Airport Projects

Consultant	Minimum Qualifications (years)	Consultant	Minimum Qualifications (years)
Senior Transport Planner	15	Senior Nav. Aids Specialist	15
Senior Transport Economist	15	Senior Aerospace planner	15
Senior Financial Analyst	15	Senior Environmental Specialist	10*
Senior Airport Engineer	15	Senior Climate Change Adaptation Specialist	15
Senior Geodetic Engineer	15		
Senior Structural/Civil Engineer	15	Senior Environmental Planner	15
		Senior Social Development Specialist	15
Senior Geotechnical Engineer	15		
Senior Architect (Airport)	15	Senior Gender Specialist	10
Senior Landscape Architect	15	Senior Land Acquisition/ Resettlement Specialist	10
Senior Sanitary Engineer	15		
Senior Mechanical Engineer	15	Senior Procurement Specialist	15
Senior Electrical Engineer	15	Senior Legal Expert (Transport Law)	10
Senior Private Public Partnership Specialist	15		

* Must have Instrument Flight Procedure Organization Certificate by the CAAP or equivalent and demonstrated experience in the design instrument approach procedures in accordance with ICAO PANS OPS

Table A3.30 – Key Required Expertise
Maritime Port Projects

Consultant	Minimum Qualifications (years)	Consultant	Minimum Qualifications (years)
Senior Transport Planner	15	Senior Environmental Specialist	15
Senior Transport Economist	15	Senior Environmental Planner	15
Senior Financial Analyst	15	Senior Climate Change Adaptation Specialist	15
Senior Port Engineer	15		
Senior Geodetic Engineer	15	Senior Social Development Specialist	10
Senior Structural/Civil Engineer	15		
		Senior Gender Specialist	10
Senior Marine Engineer	15	Senior Land Acquisition/ Resettlement Specialist	10
Senior Geotechnical Engineer	15		
Senior Sanitary Engineer	15	Senior Procurement Specialist	10
Senior Mechanical Engineer	15	Senior Legal Expert (Transport Law)	15
Senior Electrical Engineer	15		
Senior Nav. Aids Specialist	15	Senior Private Public Partnership Specialist	15

Table A3.31– Key Required Expertise
National Greenway Project

Consultant	Minimum Qualifications (years)	Consultant	Minimum Qualifications (years)
Senior Urban Transport Planner / Team Leader (for National Greenways)	20	Senior Graphic Designer	15
		Senior Social Development Specialist	15
Senior Architect	20	Senior Economist	15
Senior Landscape Architect	20	Senior Project Manager	15

Consultant	Minimum Qualifications (years)	Consultant	Minimum Qualifications (years)
Senior Communication Specialist	20	Senior Environmental Specialist	20

Table A3.32 – Key Required Expertise
NITC Project

Consultant	Minimum Qualifications (years)
Senior Intelligent Transport System Specialist	15

80. The key experts listed in Tables A3.28 to A3.32 above will not necessarily be part of the core team (as defined under par. 35) but will be expected to lead or be responsible to oversee the work of sub-team of experts during the various assignments. During the assignments, it may be necessary for the consultant to bring additional external expertise required with prior approval of the client.

D. Proposal Preparation

81. The shortlisted consulting firms are requested to prepare a detailed description of how they propose to deliver the outputs of the contract in the section of their proposal called “Approach and Methodology.” In this narrative, firms should clearly explain how they will achieve the outputs and defined deliverable and include detailed information on key and non-key experts that will comprise the core project team and their proposed input. The consultants must also describe the experience of the firm or joint venture, and core team key experts in the Philippines or similar geopolitical environment.

82. **Core team of experts.** The consultant must provide a minimum of 42 person-months of key experts (core team) to be posted at the PMU for the duration of the contract. The core team, including a Project Management Specialist/Team Leader, which will be constituted preferably by permanent employees of the consulting firm or joint venture or experts working exclusively for the firm or JV member, the team will be based at the implementing agencies office in Clark but may be required to travel to project sites frequently. Only one curriculum vitae must be submitted for each key and non-key expert included in the proposal. Only the curriculum vitaes of key experts will be scored as part of the technical evaluation of proposals. The curriculum vitaes of non-key experts will not be scored, however ADB will review the individual curriculum vitaes and may reject the curriculum vitaes of non-key experts if the experience and qualification of the experts is considered inadequate or substandard. The overall composition of the core team, the credentials of non-key experts, and the design of the team as a whole – including the appropriateness of the level of inputs (home, field, total) – will be taken into consideration in the evaluation of Quality of Approach and Work Plan and Personnel Schedule criteria.

83. All positions under the contract, both key and non-key experts for the core team, must be included and budgeted for in the financial proposal in accordance with the person-month allocation required for each as defined by the consultant’s proposed approach and methodology and work plan. The budget for the key and non-key experts to be appointed for each individual sub-project assignments will be the object of separate propositions during implementation and will be paid from the unallocated fund category reserved under the contract for those subproject assignments. Likewise, travel costs of the core team to cover expenses of travel between the

implementing agencies headquarters and the project sites, which cannot be determined until the project sites are selected, will be allocated from unallocated funds during implementation.

84. The proposal should also include a confirmation of availability of key experts listed in Table A3.8 to A3.12 that may be assigned senior positions in various sub-project assignments. The qualifications and expertise of those key experts will be a key consideration in the evaluation of the qualification of the firm or joint venture.

1. Key Experts (Core Team)

85. The consultant has full discretion over the composition and structure of the proposed core team of experts and is responsible to provide all necessary expertise and qualifications to deliver the required output of the assignment. However, as a minimum requirement, the team must comprise 42 person months of input for a project management specialist/team leader (Table A.33). The person-months indicated in the table below are strict minimum and the consultant may propose longer inputs if it is deemed necessary to meet the objectives of the approach and methodology.

Table A3.33– Key Core Expert Qualifications

Position	Minimum Person Months	Requirements
Project Management Specialist/Team Leader	42	• Advanced degree in engineering, or other relevant field; • Minimum 20 years of professional experience; • Minimum 15 years of experience in project management, including ADB or ODA financed projects

ADB = Asian Development Bank; ODA = official development assistance.

86. **Non-Key Experts**. In addition to the mandatory key expert described in Table A3.13, the consultant is expected to provide non-key experts for the core team to ensure all aspects of the work can be undertaken, and all deliverables and reports are completed, in accordance with the implementation schedule. All non-key experts must have adequate qualifications and experience in a relevant field with a minimum of 5 years of experience.

87. In addition, the consultant is required to provide technical and administrative staff necessary for the core team to achieve its role and objectives. The proposal must provide a list of technical and administrative personnel to be provided. The consultant is responsible to ensure that the technical and administrative personnel is sufficient to effectively carry out its functions. The cost of technical and administrative staff may be included in the financial proposal, but it is understood that if additional staff is required during implementation of the contract to meet its objective and schedule, the cost of such additional staff will be borne by the consultant and will not be compensated.

88. The project list in Appendix 1 above is indicative. While all projects listed are considered priority investments, the government may substitute any of the listed projects with other transportation projects within or outside the initial regions.

2. Specific Tasks of the Project Management Specialist /Team Leader

89. The Project Management Specialist/Team Leader will be responsible for:

(i) overall liaison with the implementing agencies;

(ii) preparation of propositions for each individual assignment and negotiations with the implementing agencies;
(iii) coordination of the input and output of the sub-teams of consultants (both in the field and home based) involved in the individual assignments;
(iv) quality control of work carried out and output delivered by the sub-teams;
(v) overall management and administration of the contract; and
(vi) reporting to the implementing agencies on progress of work being carried out by the Core Team and the sub-teams.

90. The Project Management Specialist/Team Leader must have an advanced degree from a recognized institution in Engineering, Urban Planning, Transport or other relevant field, and have at least 20 years of professional experience including 15 years in management of transport projects. Experience in the Philippines or similar geopolitical environment would be considered an asset.

3. Services Provided by the Employer

91. DOTr will assign relevant counterpart staff to the project on a full-time basis, and will provide office space, furniture, fixtures, and other assistance in Clark that may be required for the core team to carry out its duties and responsibilities for the successful completion of the project. In addition, DOTr shall assist in obtaining the necessary permits, visas and other documents necessary by the Consultant to carry out the services under contract. DOTr will facilitate field visits and arrange meetings with relevant authorities and agencies when necessary. In addition, DOTr shall coordinate with the respective authorities responsible for maintenance of peace and order at project locations when and if necessary, upon request of the consultant. Any other office requirements, facilities (equipment and consumables) and transport requirements should be provided by the consultant. The government will pay or cover through other allowed means in line with the Philippine's taxation framework, the applicable Philippine taxes and duties on the contract on behalf of the consultant. Additional information regarding the tax law in the Philippines can be found at the government of the Philippines website (https://www.bir.gov.ph/index.PhP/tax-code.html).

4. Equipment

92. The proposal should identify the critical element of equipment that will be required by the core team. In addition, the consultant will be requested to procure equipment to assist the implementing agency and the sub-project teams in their assignments. The equipment and supplies for the sub-project teams will be the object of propositions for each sub-project and should not be included in the core team requirements. All equipment and assets purchased under the project and paid by the project will adhere to ADB's Procurement Policy (2017, as amended from time to time) and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time), and upon completion of the project, these assets will be turned over to the government. The equipment may include but not limited to:

(i) Geographic Information System Software and associated hardware;
(ii) Railway Operations Simulation Software and associated hardware; and
(iii) Transport Planning/Modelling Software and associated hardware.

E. Request for Proposition

93. As part of its proposal, the consultant is required to prepare the first proposition for a sub-project. The proposition should contain both technical and financial components. This will allow

for early mobilization, not only of the core team, but also the first sub-project team, towards meeting the objective of expediting implementation of the project. The technical component shall include the detailed approach and methodology for the proposition, curriculum vitaes of key and non-key experts, as well as proposed work plan and personnel schedule for the sub-project. The financial component shall include all costs associated with the sub-project.

94. For each of the sub-projects where a Request for Proposition will be issued during contract implementation, the consultant shall include a minimum of two and maximum of three curriculum vitaes of experts that may be deployed as team leader for the sub-project(s).

F. Evaluation of Proposals

95. The evaluation of proposals will follow the evaluation criteria provided in the RFP. The approach and methodology will consider both how the consultant envisages the use of the Core Team as well as the response to the proposition/sub-project included in this RFP. Furthermore, in the evaluation of the Quality of Methodology, Work Program and Personnel Schedule, consideration will be given on whether the overall team composition (key and non-key experts) is appropriate to meet the TOR and how it matches the proposed methodology. The extent by which proposed key and non-key experts are full time staff of the consultant will also influence the evaluation of the Quality of Methodology, Work Program and Personnel Schedule. The qualification of the firm will, in addition to previous experiences on similar projects, take into consideration the curriculum vitaes provided for potential team leader/s of subsequent sub-project/s.

Draft Terms of Reference of External Auditor

I. INTRODUCTION

1. A description of the project will be provided with a focus on the purpose for which the funds are intended consistent with broad project objectives and budget. A description of the executing and implementing agencies will be included along with the related accounting and financial management practices, loan amount, financial reporting periods to be audited, and other relevant information that should be brought to the attention of the auditors.

II. MANAGEMENT RESPONSIBILITY FOR PREPARING PROJECT FINANCIAL STATEMENTS

2. Management is responsible for preparing and fairly presenting the project financial statements, and for maintaining sufficient internal controls to ensure that the financial statements are free from material misstatement, whether due to fraud or error. In addition, management is responsible for ensuring that funds were used only for the purpose of the project, for compliance with financial covenants (where applicable), and for ensuring that effective internal controls, including over the procurement process, are maintained. In this regard, management must:

(i) Prepare and sign the Audited Project Financial Statements.
(ii) Prepare and sign a Statement of Compliance.

3. Management must include the following in the Statement of Compliance:

(i) That project financial statements are free from material misstatements including omissions and errors, and are fairly presented;
(ii) That the borrower or executing agency has utilized the proceeds of the loan only for the purpose(s) of the project;
(iii) That the borrower or executing agency was in compliance with the financial covenants of the legal agreement(s) (where applicable);
(iv) That the imprest fund procedure, where applicable, has been operated in accordance with the ADB's *Loan Disbursement Handbook*;
(v) That adequate supporting documentation has been maintained to authenticate claims stated on the statement of expenditures (SOE), where applicable, for reimbursement of eligible expenditures incurred and liquidation of advances provided to the imprest account; and
(vi) That effective internal control, including over the procurement process, was maintained.

III. OBJECTIVES

4. The objectives of the audit of the project financial statements is to enable the auditor to (i) express an independent and objective opinion as to whether the project financial statements present fairly, in all material respects, or give a true and fair view of the project's financial position, its financial performance and cash flows, and (ii) provide a reasonable assurance opinion over certain specific representations made in the Statement of Compliance (please refer to para. 10).

IV. AUDITING STANDARDS

5. The *[statutory]* audit is required to be conducted in accordance with *[specify the relevant auditing standards]*. These standards require that the auditor comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the project financial

statements are free from material misstatement. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the project financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the project financial statements whether due to fraud or error. In making those risk assessments, the auditor considers the internal control relevant to the entity's preparation and fair presentation of the project financial statements to design audit procedures that are appropriate in the circumstances, but not to expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the project financial statements.

6. The standards to be applied will be documented in the project/loan documents, and will include:

(i) Option A: Standards promulgated by the International Auditing and Assurance Standards Board:
  (a) International Standards on Auditing (ISA); and
  (b) International Standards on Assurance Engagements (ISAE).

(ii) Option B: Standards promulgated by the International Organization of Supreme Audit Institutions:
  (a) International Standards of Supreme Audit Institutions (ISSAI)

(iii) Option C: National Auditing Standards:
  (a) The auditing standards promulgated by {national authority}.
  (b) In complying with ISA, the auditor will pay attention to the following standards:
    i. ISA 800/ISSAI 1800 – Special Considerations – Audits of Financial Statements Prepared in Accordance with Special Purpose Frameworks.
    ii. ISA 240/ISSAI 1240 – The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements.
    iii. ISA 250/ISSAI 1250 – Consideration of Laws and Regulations in an Audit of Financial Statements.
    iv. ISA 260/ISSAI 1260 – Communication with Those Charged with Governance.
    v. ISA 265/ISSAI 1265 – Communicating Deficiencies in Internal Control to Those Charged with Governance and Management.
    vi. ISA 330/ISSAI 1330 – The Auditor's Responses to Assessed Risks.

V. PROJECT FINANCIAL REPORTING FRAMEWORK

7. The auditor will verify that the project financial statements have been prepared in accordance with *[International Financial Reporting Standards issued by the International Accounting Standards Board, International Public Sector Accounting Standards promulgated by the International Public Sector Accounting Standards Board, or national equivalents].* The executing agency and/or implementing agency are responsible for preparing the project financial statements, not the auditor.

VI. AUDIT DELIVERABLES

A. Audited Project Financial Statements

8. An auditor's opinion providing reasonable assurance over the project financial statements,

and project financial statements comprising the following:

Table A3.34: Content of the Project Financial Statements

For Cash-Based Financial Statements	For Accrual-Based Financial Statements
1. A statement of cash receipts and payments 2. A statement of budgeted versus actual expenditures 3. A statement of imprest account (where applicable) 4. A summary statement of expenditures (where applicable) 5. Significant accounting policies and explanatory notes 6. Any additional schedules agreed (e.g., a summary of assets)	1. A statement of financial position (balance sheet) 2. A statement of financial performance (income statement) 3. A statement of cash flows 4. A statement of changes in net assets/equity (where applicable) 5. A statement of imprest account (where applicable) 6. Significant accounting policies and explanatory notes 7. Statement of budgeted versus actual expenditures 8. Summary statement of expenditures (where applicable) 9. Any additional schedules agreed

B. Reasonable Assurance Opinion over the Use of Loan Proceeds and Compliance with Financial Covenants

9. The auditor will provide a reasonable assurance opinion following *[ISAE 3000 "Assurance Engagements other than Audits or Reviews of Historical Financial Information" or ISSAI 4200 "Compliance Audit Related to the Audit of Financial Statements"]* for the following confirmations provided by Management in the Statement of Compliance:

(i) That the proceeds of the loan were used only for the purpose(s) of the project; and
(ii) That the borrower or executing agency was in compliance with the financial covenants of the legal agreement(s), where applicable.

10. The auditor will outline the degree of compliance for each of the financial covenants in the loan agreement.

C. Management Letter

11. The auditor will provide a management letter containing, at a minimum, the following:

(i) Any weaknesses in the accounting and internal control systems that were identified during the audit, including any irregularity in the use of the imprest fund and SOE procedures (where applicable);
(ii) Any identified internal control weaknesses related to the procurement process such as, over the bidding, evaluation and contract management domains;
(iii) Recommendations to rectify identified weaknesses;
(iv) Management's comments on the audit recommendations along with the timeframe for implementation;
(v) The status of significant matters raised in previous management letters;
(vi) Any other matters that the auditor considers should be brought to the attention of the project's management; and

(vii) Details of any ineligible expenditure[48] identified during the audit. Expenditure is considered ineligible if it refers to (i) expenditures incurred for purposes other than the ones intended under the legal agreement(s); (ii) expenditures not allowed under the terms of the legal/financing agreements; and (iii) expenditures incurred in violation of applicable government regulations.

D. Specific Considerations

12. The auditor will, during the audit, pay particular attention to the following:

(i) The use of external funds in accordance with the relevant legal and financing agreements;

(ii) The provision of counterpart funds in accordance with the relevant agreements and their use only for the purposes intended;

(iii) The maintenance of proper books and records;

(iv) The existence of project fixed assets and internal controls related thereto;

(v) Where the audit report has been issued under ISA 800 or ISSAI 1800, it shall include the mandatory Emphasis of Matter paragraph alerting users of the audit report that the project financial statements are prepared in accordance with a special purpose framework and that, as a result, the project financial statements may not be suitable for another purpose. The auditor shall include this paragraph under an appropriate heading;

(vi) Where reasonable assurance has been provided using ISAE 3000 or ISSAI 4200, the assurance report must contain, among others:

- A statement that the engagement was performed in accordance with ISAE 3000 or ISSAI 4200;
- Subject matter;
- Criteria for measurement;
- A summary of the work performed; and
- The auditor's conclusion.

(vii) On the imprest fund procedure (where applicable), audit procedures are planned and performed to ensure (a) the imprest account (and any sub-accounts) has been managed in accordance with *ADB's Loan Disbursement Handbook*, (b) the cash balance of the imprest account (and any sub-accounts) is supported by evidence, (c) the expenditures paid from the imprest account (and any sub-accounts) comply with the approved project purpose and cost categories stipulated in the loan agreement, and (d) the amount of expenditures paid from the imprest account (and any sub-accounts) comply with disbursement percentages stipulated in the loan agreement;

(viii) Adequate supporting documentation has been maintained to authenticate claims stated in the SOE for reimbursement of eligible expenditures incurred and liquidation of advances provided to the imprest account (where applicable);

(ix) On the SOE procedure (where applicable), audit procedures are planned and performed to ensure that (a) the SOEs have been prepared in accordance with ADB's *Loan Disbursement Handbook*, (b) the individual payments for expenditures stated in the SOE are supported by evidence, (c) the expenditures stated in the SOEs comply with the approved project purpose and cost categories stipulated in loan agreement, and (d) the amount of expenditures stated in the SOEs comply with disbursement percentages stipulated in the loan agreement; and

[48] If the auditor reports any ineligible expenditure in the management letter, the details of the findings should include the funding source to which the observation relates.

(x) Any weaknesses in internal controls over the procurement process.

13. All reports must be presented in the English language within 6 months following the end of the fiscal year.

14. Public disclosure of the project financial statements, including the auditor's opinion on the audited project financial statements, will be guided by ADB's Public Communications Policy (2011). After review, ADB will disclose the audited project financial statements and the opinion of the auditor on the audited project financial statements no later than 14 calendar days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter and the additional auditor's opinions will not be disclosed[49].

VII. OTHER MATTERS

A. Statement of Access

15. The auditor will have full and complete access, at all reasonable times, to all records and documents including books of account, legal agreement(s), bank records, invoices and any other information associated with the project and deemed necessary by the auditor.

16. The auditor will be provided with full cooperation by all employees of *[XYZ]* and the project implementing units, whose activities involve, or may be reflected in, the annual project financial statements. The auditor will be assured rights of access to banks and depositories, consultants, contractors and other persons or firms hired by the employer.

B. Independence

17. The auditor will be impartial and independent from any aspects of management or financial interest in the entity or project under audit. The auditor should be independent of the control of the entity. The auditor should not, during the period covered by the audit, be employed by, or serve as director for, or have any financial or close business relationship with the entity. The auditor should not have any close personal relationships with any senior participant in the management of the entity. The auditor must disclose any issues or relationships that might compromise their independence.

C. Auditor Experience

18. The auditor must be authorized to practice in the country and can apply the agreed auditing standards. The auditor should have adequate staff, with appropriate professional qualifications and suitable experience, including experience in auditing the accounts of projects or entities comparable in nature, size and complexity to the project or entity whose audit they are to undertake. To this end, the auditor is required to provide curriculum vitae of the personnel who will provide the opinions and reports, together with the curriculum vitae of managers, supervisors

[49] This type of information would generally fall under public communications policy exceptions to disclosure. ADB. 2011. *Public Communications Policy*. Paragraph 97(iv) and/or 97(v).

and key personnel likely to be involved in the audit work. This curriculum vitae should include details of audits carried out by these staff, including ongoing assignments.

TEMPLATE OF ANNUAL/QUARTERLY PROGRESS REPORT

1. Quarterly reports will include: (i) a narrative description of progress made by each project component and the project during the reporting period; (ii) modifications to the implementation schedule; (iii) major project activities by the executing agency, project management unit (PMU); (iv) financial and procurement-related information; (v) problems experienced and remedial actions proposed; and (vi) the work plan for the following period. All data shall be sex-disaggregated, where relevant. The second and fourth quarter progress reports will also include findings of initial assessments of project impact on the targeted beneficiaries

A. Introduction and Basic Data

2. Provide the following:
   (i) ADB loan number, project title, borrower, executing agencies, implementing agencies;
   (ii) total estimated project cost and financing plan;
   (iii) status of project financing including availability of counterpart funds and cofinancing;
   (iv) original and revised (if applicable) ADB loan closing date and elapsed loan period based on original and revised (if applicable) loan closing dates; and
   (v) date of last ADB review mission.

B. Utilization of Funds (ADB Loan, and Counterpart Funds)

3. Provide the following:
   (i) cumulative contract awards financed by the ADB loan, cofinancing, and counterpart funds (commitment of funds to date), and comparison with time-bound projections (targets);
   (ii) cumulative disbursements from the ADB loan, cofinancing, and counterpart funds (expenditure to date), and comparison with time-bound projections (targets); and
   (iii) re-estimated costs to completion, need for reallocation within ADB loan categories, and whether an overall project cost overrun is likely.

C. Project Purpose

4. Provide the following:
   (i) status of project scope/implementation arrangements compared with those in the report and recommendation of the President (RRP), and whether major changes have occurred or will need to be made;
   (ii) an assessment of the likelihood that the immediate development objectives (project purpose) will be met in part or in full, and whether remedial measures are required based on the current project scope and implementation arrangements;
   (iii) an assessment of changes to the key assumptions and risks that affect attainment of the development objectives; and
   (iv) other project developments, including monitoring and reporting on environmental and social requirements that might adversely affect the project's viability or accomplishment of immediate objectives.

D. Implementation Progress

5. Provide the following:

(i) assessment of project implementation arrangements such as establishment, staffing, and funding of the PMU;
(ii) information relating to other aspects of the executing agency's internal operations that may impact on the implementation arrangements or project progress;
(iii) progress or achievements in implementation since the last progress report;
(iv) assessment of the progress of each project component, such as, (a) recruitment of consultants and their performance; (b) procurement of goods and works (from preparation of detailed designs and bidding documents to contract awards); and (c) the performance of suppliers, manufacturers, and contractors for goods and works contracts;
(v) assessment of progress in implementing the overall project to date in comparison with the original implementation schedule (include actual progress in comparison with the original schedules and budgets, the reference framework for calculating the project progress will be provided by ADB); and
(vi) an assessment of the validity of key assumptions and risks in achieving the project's quantifiable implementation targets.

E. Compliance with Covenants

6. Provide the following:
(i) the borrower's compliance with policy loan covenants such as sector reform initiatives and executing agency reforms, and the reasons for any noncompliance or delay in compliance;
(ii) the borrower's and executing agency's compliance with financial loan covenants including the executing agency's financial management, and the provision of audited project accounts or audited agency financial statements; and
(iii) the borrower's and executing agency's compliance with project-specific loan covenants associated with implementation, environment, and social dimensions.

F. Major Project Issues and Problems

7. Summarize the major problems and issues affecting or likely to affect implementation progress, compliance with covenants, and achievement of immediate development objectives. Recommend actions to overcome these problems and issues (e.g., changes in scope, changes in implementation arrangements, and reallocation of loan proceeds).