



# Facility Administration Manual

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Project Number: 48444  
June 2017

Papua New Guinea: Sustainable Highlands Highway  
Investment Program

**CURRENCY EQUIVALENTS**  
**(as of 20 May 2017)**

Unit – Kina (K)  
K1.00 = \$0.32  
\$1.00 = K3.10

**ABBREVIATIONS**

ADB	=	Asian Development Bank
AGO	=	Auditor General Office
APs	=	affected persons
CEMP	=	construction environmental management plan
COL	=	concessional ordinary lending
CSTB	=	Central Supply and Tenders Board
DED	=	Detailed engineering design
DFAT	=	Department of Foreign Affairs (Australia)
DOF	=	Department of Finance
DOT	=	Department of Transport
DOTR	=	Department of Treasury
DOW	=	Department of Works
EA	=	executing agency
EMP	=	environmental management plan
ESO	=	environmental and safety officer
ESSU	=	Environmental and Social Safeguards Unit
EU	=	European Union
FAM	=	Facility Administration Manual
FFA	=	Framework Financing Agreement
FMA	=	financial management assessment
GESI	=	Gender Equality and Social Inclusion
HCRN	=	Highlands Region Core Network
HH	=	Highlands Highway
HRMG	=	Highlands Road Management Group
HRRIP	=	Highlands Region Road Investment Improvement Program
ICB	=	international competitive bidding
IEE	=	initial environmental examination
JICA	=	Japan International Cooperation Agency
LARF	=	Land Acquisition and Resettlement Framework
LARP	=	Land Acquisition and Resettlement Plan
MFF	=	multitranches financing facility
MOA	=	memorandum of agreement
NCB	=	national competitive bidding
NEC	=	National Executive Council
NGOs	=	nongovernment organizations
NRA	=	National Roads Authority
NRSC	=	National Road Safety Council
NTDP	=	National Transport Development Plan
NTS	=	National Transport Strategy
OCR	=	ordinary capital resources
PAI	=	project administration instructions
PFM	=	public financial management

PFR	=	periodic financing request
PMO	=	Program Management Office
PNG	=	Papua New Guinea
PSC	=	program steering committee
QCBS	=	quality- and cost based selection
RAMS	=	road asset management system
SHHIP	=	Sustainable Highlands Highway Investment Program
SPS	=	Safeguard Policy Statement
STI	=	sexually transmitted infections
TOR	=	terms of reference
TSSP	=	Transport Sector Support Program

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## **Facility Administration Manual Purpose and Process**

1. The facility administration manual (FAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The FAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the FAM.
2. The Department of Works (DOW), National Road Authority (NRA), Road Traffic Authority (RTA) are wholly responsible for the implementation of the Sustainable Highlands Highway Investment Program, as agreed jointly between Papua New Guinea and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff are responsible to support implementation including compliance by the DOW, NRA and RTA of their obligations and relevant responsibilities for project implementation in accordance with ADB's policies and procedures.
3. At Loan Negotiations, the borrower and ADB shall agree to the FAM and ensure consistency with the Framework Financing Agreement (FFA). Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the FAM and the Framework Financing Agreement and Loan and Grant Agreements, the provisions of the FFA and Loan and Grant Agreements shall prevail.
4. After the President's approval of the project's Periodic Financing Request Report, changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the FAM.



## I. INVESTMENT PROGRAM DESCRIPTION

1. The Highlands region of Papua New Guinea (PNG) is a major contributor to the fragile nation state's economy through its agricultural and mineral exports. It is also home to approximately 40% of the country's population, who rely almost exclusively on the road network for movement of people and goods, and thus livelihood opportunities as well as access to health, education, and social facilities. The road network is vulnerable because of the mountainous terrain, the fragile geological conditions, and the climate. The Government of PNG (GoPNG) and its development partners have invested significantly in improving the road network, but a lack of strategically planned and consistently implemented periodic and routine maintenance has left the network in such a poor condition that a significant amount of appropriated funding is annually expended on emergency works.

2. In 2008, ADB approved financing of Highlands Region Road Improvement Investment Program (HRRIP) which is focused on the Highlands core road network (HCRN)<sup>1</sup> of 2,500 kilometers (km) of major national and some provincial roads. To date, through three approved tranches, HRRIP has successfully improved about 350 km of the roads of the HCRN, which all lead from the hinterlands into the main road of the region and the nation, the Highlands Highway (HH). In addition, HRRIP has provided technical assistance to support the Department of Transport (DOT) to prepare a new National Transport Strategy (NTS) for 2014–2030, which provides a framework of policies and strategies for a sustainable road system in PNG.<sup>2</sup>

3. Despite this significant investment over the last nine years, and the complementary efforts of other development partners, PNG's transport sector continues to have chronic operational and institutional bottlenecks, primarily the result of: (i) poor maintenance planning and execution; (ii) weak authorities with limited institutional capacity and sector coordination across agencies; (iii) lack of regulatory enforcement and cost recovery for maintenance funding; (iv) limited numbers of quality contractors and consultants in the private sector; and (v) unsatisfactory project and contract management capacity. These bottlenecks raise domestic transport costs, constrain inclusive growth, and undercut the country's competitiveness.

4. The Sustainable Highlands Highway Investment Program (SHHIP), otherwise referred to as the Investment Program, will rehabilitate, upgrade and maintain the HH through physical investment. Additionally, aligned with provisions and policy framework of NTS, the Investment Program will provide capacity development for the broader transport sector using the HH as a pilot project for implementing the envisaged holistic approach to sustainable maintenance. It will promote national cooperation and integration, and widen access to social and economic opportunities via improved land transport infrastructure in PNG through the nation's most important road. The Investment Program will also strengthen the government's capacity in strategic planning, asset management, project preparation and implementation, and governance in the overall land transport sector, with a specific focus on long term performance-based contracts for road maintenance.

5. The multitranche financing facility (MFF) is envisaged to be financed through loans not exceeding \$625 million from ADB's ordinary capital resources (OCR) and \$70 million from ADB's concessional ordinary resources lending (COL) to help finance the Investment Program. It is envisaged that the MFF will consist of three tranches, subject to the government's submission of

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<sup>1</sup> HCRN represents 65% of the total road network in the Highlands region.

<sup>2</sup> Government of PNG, Department of Transport. 2013. National Transport Strategy, Vols. 1-3. Port Moresby.

related periodic financing requests (PFRs), execution of the related loan agreement for each tranche, and fulfillment of terms and conditions and undertakings set forth in the framework financing agreement (FFA).

6. **Impact and Outcome.** The expected impact of the program is aligned with national strategies where: (i) opportunity for equality and prosperity in rural areas is increased; (ii) well integrated, safe, financially and environmentally sustainable transport systems is attained; and (iii) access to health, education and standard of living of the people of PNG is improved.<sup>3,4,5</sup> The outcome is efficient and safe increased movement of people, goods and services between the Highlands region and markets.

7. **MFF Outputs.** The Investment Program focuses on the 430 km of HH from Lae Nadzab airport to Kagamuga airport in Mt Hagen, a major national road. The HH carries the bulk of the traffic in the region from the hinterlands to the nation's most active port at Lae. The Investment Program outputs will be: (i) 430 kilometer of two-lane national Highlands Highway from Lae Nadzab airport to Kagamuga airport in Mt Hagen, is rehabilitated, upgraded, and effectively maintained as required to be safe, climate- and disaster resilient for all users; (ii) road safety increased and sustained for pedestrians and vehicle passengers on the Highlands Highway; (iii) transport logistics and services improved in the Highlands region to strengthen agricultural value chain for domestic and international trade; and (iv) program management and institutional capacity of DOW strengthened to deliver the Investment Program and sustain its benefits.

8. **Tranche 1 Outputs.** Outputs financed under Tranche 1 will be: (i) 40% of the 430 kilometer of two-lane national Highlands Highway from Lae Nadzab airport to Kagamuga airport in Mt Hagen, is rehabilitated, upgraded, and effectively maintained as required to be safe, climate- and disaster resilient for all users; (ii) road safety increased and sustained for pedestrians and vehicle passengers on the Highlands Highway; and (iii) program management and institutional capacity improved to deliver the Investment Program and sustain its benefits.

## II. IMPLEMENTATION PLANS

### A. Project Readiness Activities

9. At the completion of the Loan Fact-finding Mission on 16 December 2016, a PPTA with key staff (procurement, engineering, financial management, and safeguards) continues to function and support ADB–DOW partnership efforts, with the ad hoc assistance of the HRMG under the ongoing HRRIP, in completing and revising detailed designs, preparation of procurement action and tender documents, and safeguards documents for Tranche 1. Overall Investment Program readiness activities are presented in Table 1.

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<sup>3</sup> Department of National Planning and Monitoring. 2010. Development Strategic Plan.

<sup>4</sup> Department of Transportation. 2014. National Transport Strategy 2014 – 2030.

<sup>5</sup> Department of National Planning and Monitoring. 2014. National Strategy for Responsible Sustainable Development for Papua New Guinea, 2<sup>nd</sup> Edition.



**Table 1: Overall Investment Program Readiness Activities**

2016		2017										Responsibility
Q3	Q4	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
<b>Indicative Activities</b>												
Selection of road improvement works for inclusion	<input type="checkbox"/>											DOW
Establish project implementation arrangements	<input type="checkbox"/>											DOW
Preparation of design and bidding documents for road improvement works	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					DOW
Advance contracting												
ADB President approval								<input type="checkbox"/>				ADB
Loan signing								<input type="checkbox"/>				GoPNG and ADB
Government legal opinion provided									<input type="checkbox"/>			GoPNG
Loan effectiveness									<input type="checkbox"/>			ADB

10. For the subsequent tranches, the detailed engineering design, safeguard documents will be prepared under the previous tranche. For each subsequent tranches, the PMO will provide: (i) a project appraisal report, including technical, economic, financial, environmental, and social assessments; and (ii) a PFR. The project report will be prepared in accordance with the criteria and procedures stated in Schedule 5 of the FFA and other related requirements of the GoPNG and ADB. After appraising each tranche for technical and economic feasibility and compliance with safeguard requirements, PMO will submit to ADB a summary appraisal report to be agreed between ADB and PMO. ADB will then undertake due diligence in accordance with its relevant policies and procedures, and approve the appraisal, subject to any amendments. If required by ADB, the PMO will amend the PFR and submit it to ADB for approval on or before the due date of the PFR.

**B. Overall Project Implementation Plan**

11. Throughout project implementation, the government will ensure that the project complies with ADB’s guidelines and policies in all areas of project administration, management, reporting, procurement, disbursement, financial management, and social and environmental safeguards.

12. The ten-year investment program is scheduled for completion by 31 May 2027. The physical implementation of Tranche 1 will be completed by 31 December 2021. Overall program implementation plan is shown in **Figure 1**, while the detailed implementation schedule for the subsequent tranches will be prepared during implementation of Tranche 1.

13. The overall implementation plan may be updated annually by PMO together with ADB. The updated draft implementation plan will be submitted to ADB in Month 10 of the preceding year for no objection, a response on which will be provided on or before Month

Program Activities	2017				2018				2019				2020				2021				2022				2023				2024				2025				2026				2027											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4												
<b>A. Tranche 1</b>																																																				
1 Preparation of Tranche 1	█																																																			
2 ADB's Approval of PFR	█																																																			
3 Land acquisition and resettlement																																																				
4 Procurement of civil works and consultancy services	█				█																																															
5 Implementation of Activities	█				█				█				█				█																																			
<b>B. Tranche 2</b>																																																				
1 Preparation of Tranche 2																																																				
2 ADB's Approval of PFR																																																				
3 Land acquisition and resettlement																																																				
4 Procurement of civil works and consultancy services																																																				
6 Implementation of Activities																																																				
<b>C. Tranche 3</b>																																																				
1 Preparation of Tranche 3																																																				
2 ADB's Approval of PFR																																																				
3 Land acquisition and resettlement																																																				
4 Procurement of civil works and consultancy services																																																				
6 Implementation of Activities																																																				

ADB = Asian Development Bank, PFR = Periodic Financing Request.  
 Source: Asian Development Bank estimates.

Tranche 1 Activities	2017				2018				2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>A. Civil Works Packages</b>																				
1 CW1																				
Land acquisition and resettlement																				
Procurement of civil works																				
Implementation																				
2 CW2																				
Land acquisition and resettlement																				
Procurement of civil works																				
Implementation																				
3 RIC																				
Investigation and detailed design																				
Land acquisition and resettlement																				
Procurement of civil works																				
Implementation																				
4 PMO Building																				
<b>B. Consulting Services</b>																				
5 CS CW1																				
6 CS CW2, RIC, GBP																				
7 CS Bridges																				
8 CS PMO Office																				
9 CS T&LPF																				
10 Community Road Safety																				
11 CS DOW Capacity Building																				

CW = Civil Works road contract, RIC=Road Investment Contract, GBP=Goroka By-Pass, PMO=Program Management Office, CS=Consultancy Services, T&LPF=Trade & Logistics Platforms

Source: Asian Development Bank estimates.



### III. PROJECT MANAGEMENT ARRANGEMENTS

#### A. Project Implementation Organizations – Roles and Responsibilities

##### Project Implementation Management Roles and Responsibilities Organizations

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Borrower:		<ul style="list-style-type: none"> <li>• Signing the FFA and the Loan Agreement for each tranche;</li> <li>• Monitoring of the investment program implementation and providing respective coordination and facilitation;</li> <li>• Budgeting, allocating and releasing counterpart funds;</li> <li>• Endorsing to ADB the authorized staff with approved signatures for WAs processing; and</li> <li>• Processing and submitting to ADB any request, when required, for reallocating the grant proceeds.</li> <li>• Submit subsequent PFRs to ADB</li> <li>• Timely provision of agreed counterpart funds for project activities</li> </ul>
Program Committee:	Steering	<ul style="list-style-type: none"> <li>• Oversee Investment Program implementation</li> <li>• Monitor progress</li> <li>• Provide approval for subsequent tranches</li> <li>• Provide guidance to the EA and IAs</li> <li>• Meet quarterly to discuss project implementation</li> <li>• Review the MFF performance</li> <li>• Facilitate central government clearances, as required</li> </ul>
Executing Agency: DOW		<ul style="list-style-type: none"> <li>• Overall project oversight and management through the Program Management Office (PMO)</li> <li>• Establishing the PMO with the required staffing as per the Institutional Development Plan</li> <li>• Planning and appraisal for other projects in the pipeline</li> <li>• Preparation of PFRs for other tranches</li> <li>• Finalizing surveys, detailed design, bidding documents, and contract award</li> <li>• Management of the bidding process for the construction all ICB procurement transactions mandatory require internal review prior award of contracts</li> <li>• Preparation and submission to ADB of WAs</li> <li>• Processing and submitting to ADB any request, when required, for reallocating the loan and grant proceeds</li> <li>• Public disclosure of project outputs</li> <li>• Establishing strong financial management system and submitting timely withdrawal applications to ADB, conducting timely financial audits as per agreed timeframe and taking recommended actions</li> <li>• Complying with all loan covenants (social and environmental safeguards, financial, economic, and others)</li> <li>• Ensuring projects' sustainability during post implementation stage and reporting to ADB on the assessed development impacts</li> </ul>

Implementing Agencies:  
DOW  
NRA  
NRSC (RTA)

- Provide oversight for community-based rural road maintenance pilot
- Processing and submitting to ADB any request through EA, when required, of the following:
  - Establishment of the PMO with appropriate staff levels as per the Institution Development Plan
  - Public disclosure of project outputs
  - Established strong financial management system and submitting timely withdrawal applications to ADB through EA, conducting timely financial audits as per agreed timeframe and taking recommended actions
- Complying with all loan covenants (social and environmental safeguards, financial, economic, and others)
- Preparation of an overall implementation plan and annual budgets
- Recruitment of the consultants
- Coordination with government agencies for getting requisite clearances (power and water connections, access roads, land acquisition, etc.)
- Management of capacity development activities
- Project safeguards document preparation, state agencies clearance coordination and safeguard plans implementation
- Consolidation, review, and submission of regular progress and financial reports to ADB
- Involving value chain stakeholders in all stages of program design and implementation
- Quality assurance of works, and services of consultants and counterpart staff
- Monitoring and evaluation of project outputs and results, including periodic review, preparation of review reports reflecting issues and time-bound actions taken (or to be taken)

ADB

- Assist the EA and the PMO in providing timely guidance at each stage of the project for smooth implementation in accordance to the agreed implementation arrangements
- Review all the documents that require ADB approval
- Conduct periodic loan review missions, a mid-term review, a completion mission for each tranche under the MFF, and an overall program completion mission
- Timely process WAs and release eligible funds
- Ensure the compliance of financial audit recommendations
- Regularly update the project performance review reports
- Regularly post on ADB web the updated project information documents for public disclosure, and

also the safeguards documents as per disclosure provision of the ADB safeguards policy statement

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## B. Key Persons Involved in Implementation

### Executing Agency

DOW

Mr David Wereh  
Secretary  
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Papua New Guinea  
Tel. No. +675 324 1114  
Fax No. +675 3241102  
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Mission Leader

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## C. Investment Program Organizational Structure

15. A detailed institutional assessment and development plan has been conducted. A summary of DOW's capacity gaps for SHHIP implementation as assessed in late 2016 is presented in Appendix 4 of the FAM.

16. **Implications for SHHIP.** Rather than focusing on the capacity needed for the totality of road management in PNG, it is appropriate to focus this capacity analysis to identifying issues that impact the DOW's ability to manage the SHHIP. This allows the identification and assessment of capacity gaps that need to be filled for the good management of necessary aspects of its implementation.

17. The gaps identified are therefore relevant to implementation of this program rather than developing the capacity of the DOW overall. The existence of the identified gaps have implications for the design of the program in that the design has adopted a model in which capacity gaps are nullified by obtaining and focusing capacity in-location in the form of specialists dedicated for these civil works. Hence, functional capacity gaps are nullified by establishing dedicated semi-autonomous project teams overseen by a senior core group and the Program Steering Committee (PSC).

18. A three-tiered management model will apply: strategy and performance management at the top, civil works contractor supervision for contract compliance by contractors, and an integrated PMO ensuring that government and ADB procedures are enacted.

19. Rather than deploying technical assistance in the HQ of DOW or other parts of the sector, the emphasis will be on creating, maintaining and developing a strong PMO in Goroka. The specific nature and severity of capacity gaps addressed will depend on the ability and numbers of DOW staff deployed to the PMO and the size of technical assistance available,

but will include all aspects of the project work cycle, particularly in works and contract management, including contract monitoring, funds disbursement, safeguards monitoring, progress reporting, and records management.

20. With the DOW safeguards function located in Port Moresby with limited operational capacity (especially in social safeguards), there will be a need for capacity development assistance to fill this gap in Goroka. Other specialist areas needed in the PMO will include road safety. There will also be a need for PMO-based accounting for the system to operate smoothly.

21. Hence, the facility design will allow it to fully operate meeting time and funding constraints while modelling best practice, by operating its own work systems and processes separate from certain functions of the department and sector, and contractor supervision and technical assistance will be largely civil works focused.

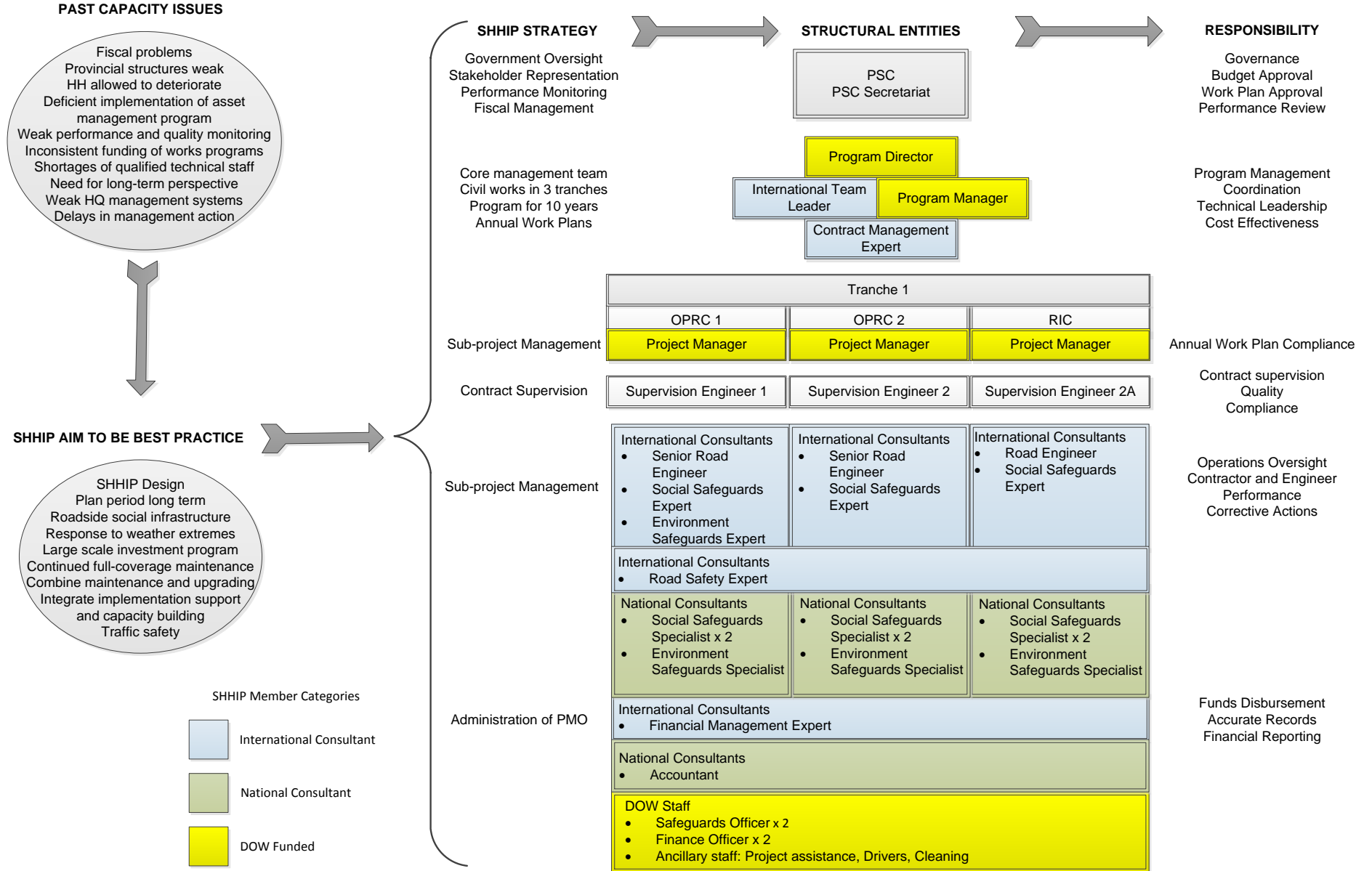
22. The advantage of this model is that it allows civil works to proceed quickly and effectively, but importantly it will also serve as a valuable case study for DOW in other areas of the network. The intent is that the good management and results from this PMO will assist capacity development by modelling appropriate behavior and structure at the level of regional works implementation and management. This will include modern approaches to engineering as well as emphasis being placed on safe, gender responsive design, and climate- and disaster-proofed infrastructure. The TA will potentially strengthen DOW's management and technical team capability, as serve as a model for functional efficiency, communications and decision-making, and results monitoring and reporting.

23. For the HQ of DOW, capacity gaps will continue to be strengthened through the other donors and projects, notably the TSSP. Priorities arising from this assessment indicate the need to a) strengthen the ICT function in respect to management reporting, database development, and the RAMS ability to support and incorporate SHHIP works, and b) have a new look at the DOW workforce management systems so as to support the Corporate Plan with needed organizational development, to plan and right-size the staffing profile, to develop and manage employee performance improvements, and results-oriented management practices that focus on output and impact of interventions rather than input and process reporting. Sector structural problems in roads maintenance have been noted and should be addressed in parallel with SHHIP and funded from an alternative donor source.

24. **The SHHIP Program.** The following chart titled Investment Program Function Chart outlines the project strategy and structure in functional and project terms. Note that some consulting positions are notionally allocated to a specific sub-project to portray a balanced project model, but in reality all consultants will operate across all sub-projects as needed.



**INVESTMENT PROGRAM FUNCTION CHART**



25. **SHHIP Organizational Structure.** The design of SHHIP has been based on need and has responded to this capacity analysis. It is focused on the successful implementation of planned civil works, on demonstrating an effective way of managing and modelling a provincial operation, and on ensuring compliance with required systems and processes.

26. A high-level Program Steering Committee (PSC) has been established with the purpose of oversight of the overall Investment Program. The key PSC role will be to provide leadership and advice to the executing and implementing agencies consistent with requirements. Specific responsibilities of the PSC will include: (i) governance and guidance for Investment Program implementation; (ii) approval of an annual works plan for the Project Management Office (PMO); (iii) approval of appointment of staff to the PMO; (iv) monitoring of progress and review of the performance of the PMO including the technical assistance (TA); and (v) to support the policies of NTS and, in particular, to focus on sustainable maintenance.<sup>6</sup>

27. In discharging these responsibilities, the PSC will meet regularly (at least bi-annually) to review, discuss and advise on the status of milestone achievements, approve and monitor expenditure against budget and activity plans, discuss and determine on implementation issues. The PSC will be chaired by the Chief Secretary and supported by a Technical Secretariat.

28. The DOW will be the executing agency (EA). The Department has the mandate for planning, designing and implementing transport projects as well as exercising policy and regulatory authority over the sector in conjunction with the DOT. The lessons learned from the Project Implementation Units (PIUs) financed under HRRIP have provided the basis for the establishment of the new PMO within DOW and located in Goroka. The PMO will provide execution and administration of the SHHIP and will be responsible for day-to-day preparation and implementation of Investment Tranche in accordance with the provisions of the FFA, this FAM, and related legal agreements.

29. The PMO will be established without delay and will include DOW staff as well as international and national consultants. It will be led by a core management team comprising:

- SHHIP Program Director (from DOW)
- International Team Leader
- Project Manager, (from DOW)
- Contract Management Expert (international).

30. The core team will be responsible for managing the SHHIP and executing strategy and direction from the PSC. This structure will continue through the 10 years of the SHHIP. The structure for each of three tranches will reflect the civil works planned for that tranche and so will be subject to determination before the start of each tranche and ongoing need assessment.

31. With the concurrence of DOT and ADB, the DOW will be responsible for appointing the Program Director with overall responsibility for the achievement of the SHHIP. The Program Director will ensure that civil works contractors and supervising engineers are contracted and the PMO is established. The Program Director will ensure that appropriate DOW staff will be identified and deployed to the PMO as approved, and that DOW departments will support the PMO in

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<sup>6</sup> It is planned that a Tranche Steering Committee (TSC) will also be established for each tranche, the idea that the TSC will meet more regularly than the PSC and deal with more specific implementation matters as they occur per each tranche. It is envisaged that the TSC will include develop partners who are cofinancing specific tranches. Specific details pertaining to composition, role, and responsibilities of the TSC will be defined once Tranche 1 commences and the FAM will be updated accordingly.

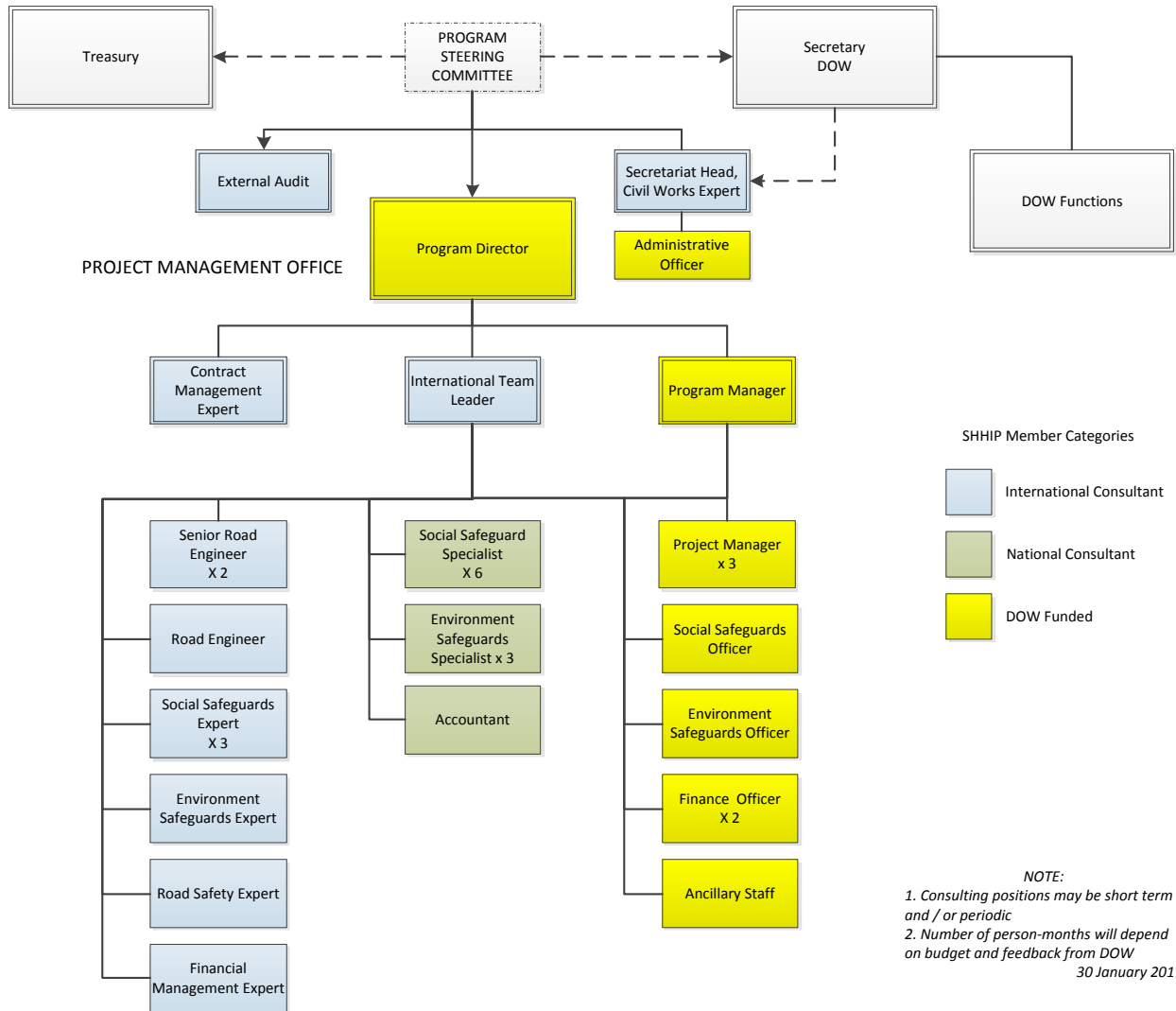
expeditious processes and reporting. The International Team Leader will ensure that international and national consulting positions are filled properly and appointees are guided and monitored to achieve their terms of reference. The Program Manager will have overall operational responsibility for management of SHHIP projects: T1 - CW1, CW2, and RIC; T2 - CW1, CW2, and bridges, and T3 - CW1, CW2, and bypass, logistics PF, weigh stations etc.

32. For Tranche 1, a DOW Project Manager will be appointed for each of CW1, CW2, and RIC.

33. The core team will work at the strategic level in ensuring that the PSC requirements are met while also providing overall leadership and management of SHHIP. At the civil works level, consulting firms will be appointed to supervise works contractors. At the PMO level, international and national consultants will support the core management team. They will be appointed for each tranche as needed, and it will be desirable that they be allocated to specific sub-projects for implementation support and capacity building, and flexibly managed so that there is good coordination and back-up available across projects. PMO consultant appointees will include engineering, safeguards, financial, road safety and other specialists, and they will work alongside DOW staff deployed to the PMO.

34. **Organizational Chart.** The staffing structure for the SHHIP is therefore portrayed in the following organizational chart, and terms of reference are detailed in the following section.

SHHIP ORG CHART



35. **Institutional Strengthening for SHHIP.** The objective of SHHIP is: “Make the movement of people, goods and services between the Highlands Region and domestic and international markets safer and more efficient.” The goal of the institutional strengthening is therefore to ensure that the civil works for the investment and maintenance of the highlands highway is properly implemented and to develop technical capacity to deliver such civil works elsewhere in PNG more efficiently and effectively using better systems.

36. Activities under program management and institutional capacity building will strengthen DOW in implementing the civil works as planned and by achieving key program results agreed and outlined under the program. Emphasis is placed on safe, gender responsive design, and climate- and disaster-proofed infrastructure.

37. This model will allow civil works to proceed quickly and effectively, but importantly it will also serve as a valuable case study for DOW in other areas of the network. The intent is that the good management and results from this PMO will assist capacity development by modelling

appropriate behavior and structure at the level of works implementation and management. This will include modern approaches to engineering as well as emphasis being placed on safe, gender responsive design, and climate- and disaster-proofed infrastructure. The program management and institutional capacity building will potentially strengthen DOW's management and technical team capability, as serve as a model for functional efficiency, communications and decision-making, and results monitoring and reporting.

38. Institutional strengthening will support each planned output for the SHHIP, and this is designed for tranche 1 in the following ways:

- Output 1: 40% of the Highlands Highway from Lae Nadzab airport to Kagamuga airport at Mt. Hagen rehabilitated, effectively maintained, and upgraded as required to be safe, climate- and disaster resilient for all users: The capacity assistance is specifically designed to support restoration, maintenance and upgrading to achieve safety, weather-resilient, and disaster-resilient features, and will achieve this by the division of responsibilities with PSC oversight at the top level, with works supervision by engineering contractors, and with implementation support and capacity building through the PMO.
- Output 2: Road safety increased and sustained for pedestrians and vehicle passengers on the Highlands Highway. The engineering design will include modern and affordable road safety provisions through community road safety pilots and the PMO will include an international expert advising on the management of the pilots.
- Output 3: Not applicable until Tranche 3
- Output 4: Program management and institutional capacity improved to deliver the program and sustain its benefits. These activities include a combination of planning and implementation oversight supported by high level technical expertise, plus the strong processes of program management will serve as a model for similar project operations in other parts of the road network.

39. **Consulting Packages.** The PMO for Tranche 1 has been designed as outlined below:

#### Indicative Summary of PMO Consulting Services Tranche 1

Positions	Number	Total Inputs (person-months)	Direct Costs (USD)
<b>A. International</b>			
1. International Team Leader	1	40	1,326,400
2. Contract Management Expert	1	37	1,046,900
3. Secretariat Head, Civil Works Expert	1	34	967,400
4. Senior Road Engineer	2	72	1,974,400
5. Road Engineer	1	36	930,400
6. Social Safeguards Expert	3	102	2,386,900
7. Environment Safeguards Expert	1	32	745,400
8. Road Safety Expert	1	32	794,400
9. Financial Management Expert	1	28	808,400
<b>Sub Total (A)</b>	<b>12</b>	413	10,989,600
<b>B. National</b>			
10. Social Safeguards Specialist	6	264	660,000

11 Environment Safeguards Specialist	3	132	247,500
12 Accountant	1	44	82,500
<b>Sub Total (B)</b>	<b>10</b>	<b>440</b>	<b>990,000</b>
<b>Total (A+B)</b>	<b>22</b>	<b>853</b>	<b>11,979,600</b>

#### IV. COSTS AND FINANCING

##### A. Cost Estimates Preparation and Revisions

40. The cost estimates were prepared by the financial management specialist in close coordination with other international specialists, staff from Department of Works (DOW) and other donor agencies working in DOW.

##### B. Key Assumptions

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

- (i) Exchange rate: PGK 3.10 = \$1.00 as of 1 February 2017.
- (ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:

**Table 1: Escalation Rates for Price Contingency Calculation**

Item	2017	2018	2019	2020	Average
Foreign rate of price inflation	1.4%	1.5%	1.5%	1.5%	1.5%
Domestic rate of price inflation	6%	6%	6%	6%	6%

Source(s): Asian Development Bank

42. The total Investment Program cost is estimated at about \$1 billion equivalent. All costs were estimated using February 2017 prices.

**Table 2: Investment Program**

Source	Amount million)	(\$ Percent Share
Asian Development Bank (OCR)	610.0	60%
Asian Development Bank (COL)	70.0	7%
Co-financing	186.5	18%
GoPNG	148.5	15%
<b>Total</b>	<b>1,015.0</b>	<b>100%</b>

Source: ADB estimates

43. The total cost of Tranche 1, including taxes, physical and price contingencies, interest, and other charges, is estimated at \$357.5 million equivalent (Table 2). The Investment Plan is summarized below and details are shown in Tables A through E. Given the financing plan and possible future project and country circumstances, there are associated risks with the financing arrangements, wherein there could be unforeseen cost overruns or alternatively, but less likely, no need to utilize the contingencies where \$34.9 million (80%) of the government financing is currently allocated. Project progress monitoring will assess the need to mitigate this risk. Should

adjustment in financing prove necessary, costs will be reallocated against the financiers to comply with approved financing arrangements and cost-sharing percentages.

**Table 3: Tranche 1 Investment Plan**

<b>Item</b>	<b>Amount<sup>a</sup> (\$ million)</b>
<b>A Base Cost</b>	
Output 1: Rehabilitation, Upgrade and Maintenance of Highlands Highway	253.9
Output 2: Road Safety Improved and Maintained	18.9
Output 3: Program Administration and Management	25.9
<b>Subtotal (A)</b>	<b>298.7</b>
<b>B Contingencies<sup>b</sup></b>	<b>43.4</b>
<b>C Finance Charges During Implementation<sup>c</sup></b>	<b>15.4</b>
<b>Total (A+B+C+D)</b>	<b>357.5</b>

a. Includes taxes and duties of approximately \$26 million to be financed from ADB and Government of Australia resources for Tranche 1. Such amount does not represent an excessive share of the project

b. Physical contingencies computed at 10% of base cost. Price contingencies computed at 1.5% for foreign cost and 6% for local cost.

c. Finance charges are 2% for COL; 2.78% for OCR that includes ADB spread and Maturity Premium. Commitment charge computed at 0.15%

Source: Asian Development Bank

## A. Detailed Cost Estimates by Expenditure Category – Tranche 1

Expenditure Categories	USD Million			PGK Million			% of Total Base Cost
	FC	LC	Total	FC	LC	Total	
<b>A. Investment Cost</b>							
1 Civil Works	216.3	9.1	225.4	670.6	28.3	698.9	75.5%
2 Consulting Services	47.3	0.0	47.3	146.7	0.0	146.7	15.8%
2.1 Construction Supervision	43.8	0.0	43.8	135.7	0.0	135.7	
2.2 Studies	3.5	0.0	3.5	11.0	0.0	11.0	
<b>Subtotal (A)</b>	<b>263.7</b>	<b>9.1</b>	<b>272.8</b>	<b>817.3</b>	<b>28.3</b>	<b>845.6</b>	91.3%
<b>B Project Management</b>							
1 PMO Consultants	15.5	0.0	15.5	48.1	0.0	48.1	5.2%
2 PMO Operating Cost	10.2	0.0	10.2	31.5	0.0	31.5	3.4%
3 Audits	0.2	0.0	0.2	0.7	0.0	0.7	0.1%
<b>Subtotal (B)</b>	<b>25.9</b>	<b>0.0</b>	<b>25.9</b>	<b>80.3</b>	<b>0.0</b>	<b>80.3</b>	8.7%
<b>Total Base Cost</b>	<b>289.6</b>	<b>9.1</b>	<b>298.7</b>	<b>897.6</b>	<b>28.3</b>	<b>925.9</b>	<b>100.0%</b>
<b>C Contingencies</b>	<b>8.5</b>	<b>34.9</b>	<b>43.8</b>	<b>26.3</b>	<b>108.1</b>	<b>134.5</b>	
1 Physical Contingencies	6.0	25.4	31.4	18.5	78.7	97.2	10.5%
2 Price Contingencies	2.5	9.5	12.0	7.8	29.4	37.2	4.0%
<b>Subtotal (B)</b>	<b>8.5</b>	<b>34.9</b>	<b>43.4</b>	<b>26.3</b>	<b>108.1</b>	<b>134.5</b>	14.5%
<b>D Finance Charges</b>							
1 Interest During Construction	14.6		14.6	45.4	0.0	45.4	4.9%
2 Commitment Charges	0.8		0.8	2.5	0.0	2.5	0.3%
<b>Subtotal (C)</b>	<b>15.4</b>	<b>0.0</b>	<b>15.4</b>	<b>47.9</b>	<b>0.0</b>	<b>47.9</b>	5.2%
<b>Total Project Cost (A+B+C+D)</b>	<b>313.5</b>	<b>44.0</b>	<b>357.5</b>	<b>971.8</b>	<b>136.4</b>	<b>1,108.3</b>	119.7%



**B. Allocation and Withdrawal of Loan Proceeds**

44. Table 1 shows the allocation and withdrawal of funds for Tranche 1 using COL loan proceeds. Total proceeds is estimated at \$30 million.

**Table 1: Allocation and Withdrawal of COL Loan Proceeds - Tranche 1**

No	Item	Total Amount Allocated for ADB Financing (\$)		Percentage of ADB Financing from COL Loan
		Category	Subcategory	
1	Civil Works	23,600,000		10% of Total Expenditure Claimed
2	Project Management	3,680,000		
2B	PMO Operations		3,460,000	34% of Total Expenditure Claimed
2C	Audits		220,000	100% of Total Expenditure Claimed
3	Finance Charges	1,150,000		100% of Total Amount Due
4	Unallocated	1,570,000		
	<b>Total</b>	<b>30,000,000</b>		

Note: Numbers may not sum precisely due to rounding

Source: Asian Development Bank estimates

45. Table 2 shows the allocation and withdrawal of funds for Tranche 2 using OCR loan proceeds. Total proceeds is estimated at \$272 million.

**Table 2: Allocation and Withdrawal of OCR Loan Proceeds - Tranche 1**

No.	Item	Total Amount Allocated for ADB Financing (\$)		Percentage of ADB Financing from OCR Loan
		Category	Subcategory	
1	Civil Works	192,740,000		<b>85% of Total Expenditure Claimed</b>
2	Consulting Services	47,320,000		100% of Total Expenditure Claimed
3	Project Management	12,230,000		
3A	PMO Consultants		5,530,000	36% of Total Expenditure Claimed
3B	PMO Operations		6,700,000	66% of Total Expenditure Claimed
4	Finance Charges	14,290,000		100% of Total Amount Due
5	Unallocated	5,420,000		
	<b>Total</b>	<b>272,000,000</b>		

Note: Numbers may not sum precisely due to rounding

Source: Asian Development Bank estimates

46. Table 3 shows the allocation and withdrawal of funds for the GOA grant for Tranche 1. The grant funds will be administered by ADB.

**Table 3: Allocation and Withdrawal of GOA Grant Proceeds - Tranche 1**

No.	Item	Total Amount Allocated for GOA Grant Financing (\$)		Percentage of GOA Grant Financing
		Category	Subcategory	
1	<b>Project Management</b>	<b>10,000,000</b>		64% of Total Expenditure Claimed
2	Unallocated <sup>a</sup>	1,500,000		
	<b>Total</b>	<b>11,500,000</b>		

a. Includes amount for administration fees and other charges that may be deducted from the grant amount pursuant to the cofinancing agreement.

### C. Detailed Cost Estimates by Financier – Tranche 1

Expenditure Categories	ADB				GOA	GoPNG		Total Cost
	COL	% of cost category	OCR	% of cost category		Amount	% of cost category	
<b>A. Investment Cost</b>								
1 Civil Works	23.6	10%	192.8	85%	-	9.1	4%	225.4
2 Consulting Services	-	0%	47.3	100%	-	-	0%	47.3
2.1 Construction Supervision	-		43.8	100%	-	-		43.8
2.2 Studies	-		3.5	100%	-	-		3.5
<b>Subtotal (A)</b>	<b>23.6</b>	<b>9%</b>	<b>240.1</b>	<b>88%</b>	<b>-</b>	<b>9.1</b>	<b>3%</b>	<b>272.8</b>
<b>B Project Management</b>								
1 PMO Consultants	-		5.5	36%	10.0	64%	-	15.5
2 PMO Operations	3.5	34%	6.7	66%	-	-	-	10.2
3 Audits	0.2	100%	-		-	-	-	0.2
<b>Subtotal (B)</b>	<b>3.7</b>	<b>14%</b>	<b>12.2</b>	<b>47%</b>	<b>10.0</b>	<b>39%</b>	<b>-</b>	<b>25.9</b>
<b>Total Base Cost</b>	<b>27.3</b>	<b>9%</b>	<b>252.3</b>	<b>84%</b>	<b>10.0</b>	<b>3%</b>	<b>9.1</b>	<b>3%</b>
<b>C Contingencies</b>	<b>1.6</b>	<b>4%</b>	<b>5.4</b>	<b>13%</b>	<b>1.5</b>	<b>3%</b>	<b>34.9</b>	<b>80%</b>
Physical Contingencies	1.6	4%	2.9		1.5		25.4	31.4
Price Contingencies			2.5				9.5	12.0
<b>D Finance Charges</b>	<b>1.2</b>	<b>7%</b>	<b>14.3</b>	<b>93%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>15.4</b>
Interest During Construction	1.2	8%	13.5	92%				14.6
Commitment Charges			0.8	100%				0.8
<b>Total Project Cost (A+B+C+D)</b>	<b>30.0</b>	<b>8%</b>	<b>272.0</b>	<b>76%</b>	<b>11.5</b>	<b>3%</b>	<b>44.0</b>	<b>12%</b>

Note: Numbers may not sum precisely due to rounding

Source: Asian Development Bank estimates

**D. Detailed Cost Estimates by Outputs – Tranche 1**

Expenditure Categories	Total Cost	Output 1		Output 2		Output 3	
		Road Improvement		Road Safety Improvements		Project Management	
		Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category
<b>A. Investment Cost</b>							
1 Civil Works	225.4	206.6	68%	18.9	84%	0.0	0%
2 Consulting Services	47.3	47.3	16%	0.0		0.0	0%
2.1 Construction Supervision	43.8	43.8	14%	0.0	0%	0.0	
2.1 Studies	3.5	3.5	1%	0.0	0%	0.0	
<b>Subtotal (A)</b>	<b>272.8</b>	<b>253.9</b>	<b>84%</b>	<b>18.9</b>	<b>84%</b>	<b>0.0</b>	
<b>B Project Management</b>							
1 PMO Consultants	15.5	0.0	0%	0.0	0%	15.5	50%
2 PMO Operations	10.2	0.0	0%	0.0	0%	10.2	33%
3 Audits	0.2	0.0	0%	0.0	0%	0.2	1%
<b>Subtotal (B)</b>	<b>25.9</b>	<b>0.0</b>	<b>0%</b>	<b>0.0</b>	<b>0%</b>	<b>25.9</b>	<b>83%</b>
<b>Total Base Cost</b>	<b>298.7</b>	<b>253.9</b>	<b>84%</b>	<b>18.9</b>	<b>84%</b>	<b>25.9</b>	<b>83%</b>
<b>C Contingencies</b>							
1 Physical Contingencies	31.4	25.4	8%	1.9	8%	4.1	13%
2 Price Contingencies	12.0	10.2	3%	0.8	3%	1.1	3%
<b>Subtotal (C)</b>	<b>43.4</b>	<b>35.6</b>	<b>12%</b>	<b>2.7</b>	<b>12%</b>	<b>5.1</b>	<b>17%</b>
<b>D Finance Charges</b>	<b>15.4</b>	<b>14.4</b>		<b>1.0</b>		<b>0.0</b>	
1 Interest During Construction	14.6	13.7	4%	1.0	4%	0.0	0%
2 Commitment Charges	0.8	0.8	0%	0.1	0%	0.0	0%
<b>Subtotal (D)</b>	<b>15.4</b>	<b>14.4</b>	<b>5%</b>	<b>1.0</b>	<b>5%</b>	<b>0.0</b>	<b>0%</b>
<b>Total Project Cost (A+B+C+D)</b>	<b>357.5</b>	<b>303.9</b>	<b>100%</b>	<b>22.6</b>	<b>100%</b>	<b>31.1</b>	<b>100%</b>

Note: Numbers may not sum precisely due to rounding

Source: Asian Development Bank estimates

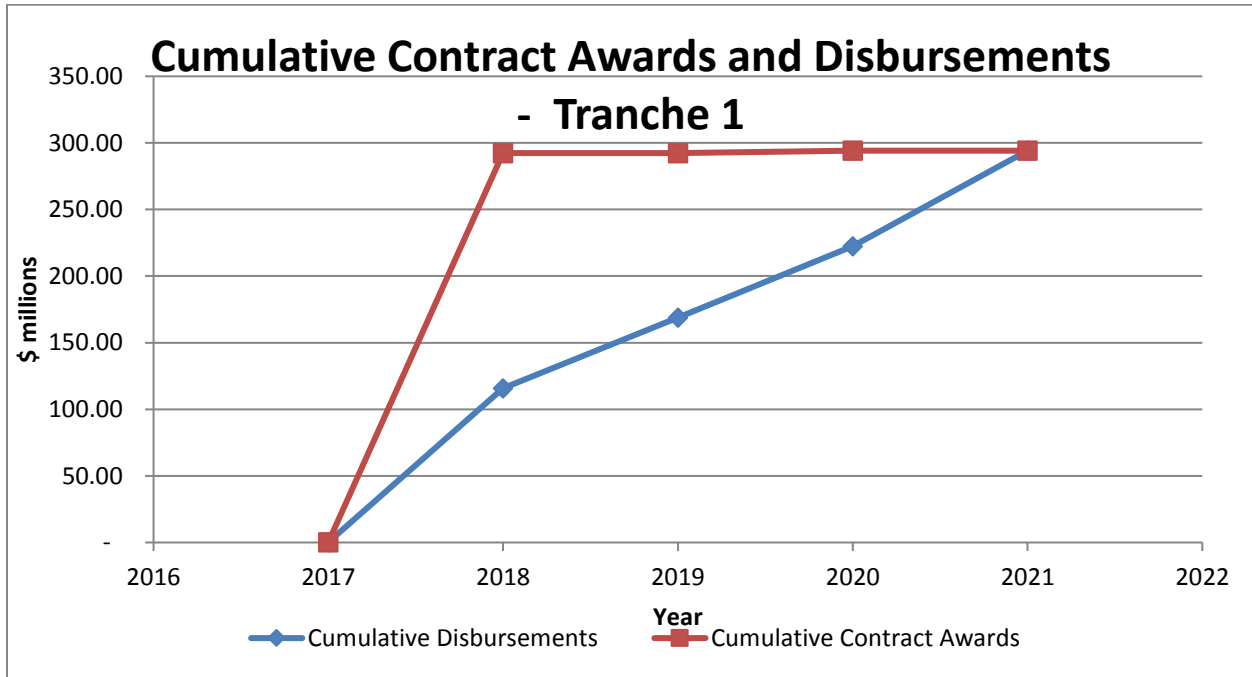
**E. Detailed Cost Estimates by Year – Tranche 1**

<b>Expenditure Categories</b>		<b>Total Cost</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>A.</b>	<b>Investment Cost</b>					
1	Civil Works	225.4	53.1	59.2	56.8	56.4
2	Consulting Services	47.32	4.4	13.1	13.1	16.7
2.1	Construction Supervision	43.8	4.4	13.1	13.1	13.1
2.2	Studies	3.5	-	-	-	3.5
	<b>Subtotal (A)</b>	<b>272.8</b>	<b>57.4</b>	<b>72.3</b>	<b>69.9</b>	<b>73.1</b>
<b>B</b>	<b>Project Management</b>					
1	PMO Consultants	15.5	1.6	4.7	4.7	4.7
2	PMO Operations	10.2	1.0	3.0	3.0	3.0
3	Audits	0.2	0.1	0.1	0.1	0.1
	<b>Subtotal (B)</b>	<b>25.9</b>	<b>2.6</b>	<b>7.8</b>	<b>7.8</b>	<b>7.8</b>
	<b>Total Base Cost</b>	<b>298.7</b>	<b>60.1</b>	<b>80.1</b>	<b>77.7</b>	<b>80.9</b>
<b>C</b>	<b>Contingencies</b>	<b>43.4</b>	<b>8.6</b>	<b>11.7</b>	<b>11.4</b>	<b>11.7</b>
<b>D</b>	<b>Finance Charges</b>	<b>15.4</b>	<b>1.3</b>	<b>3.2</b>	<b>5.0</b>	<b>6.0</b>
<b>Total Project Cost (A+B+C+D)</b>		<b>357.5</b>	<b>70.0</b>	<b>95.0</b>	<b>94.0</b>	<b>98.5</b>
<b>% Total Project Cost</b>		<b>100%</b>	<b>20%</b>	<b>27%</b>	<b>26%</b>	<b>28%</b>

Note: Numbers may not sum precisely due to rounding

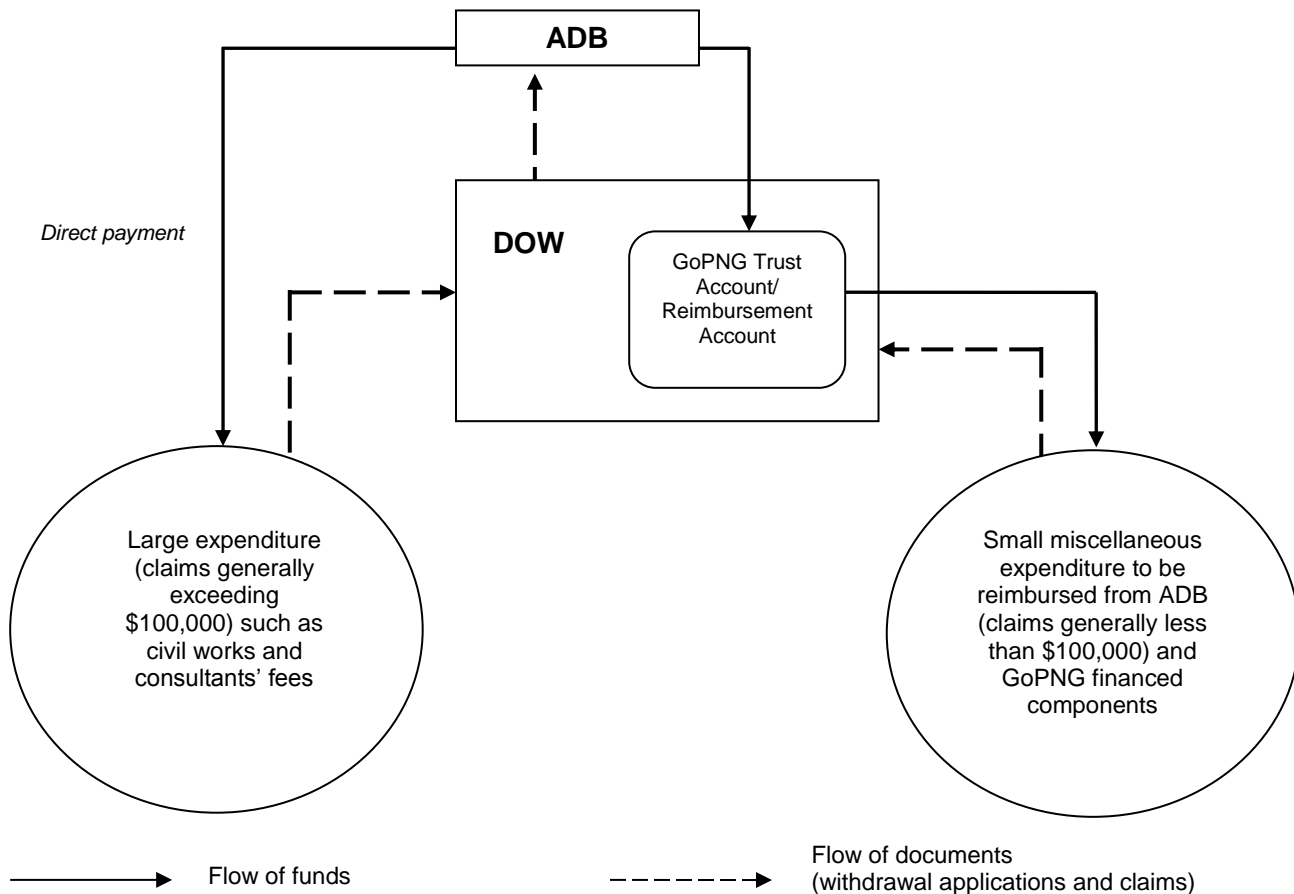
Source: Asian Development Bank estimates

**F. Contract and Disbursement S-curve – Tranche 1**



	2017	2018	2019	2020	2021
Total Disbursements	0.22	115.63	52.98	53.59	71.74
<b>Cumulative Disbursements</b>	<b>0.22</b>	<b>115.85</b>	<b>168.84</b>	<b>222.43</b>	<b>294.17</b>
Total Awards	0.22	292.13		1.82	
<b>Cumulative Awards</b>	<b>0.22</b>	<b>292.35</b>	<b>292.35</b>	<b>294.17</b>	<b>294.17</b>

**G. Fund Flow Diagram**



ADB = Asian Development Bank, DOW = Department of Works, GoPNG = Government of Papua New Guinea

## V. FINANCIAL MANAGEMENT

### A. Financial Management Assessment

47. This Financial Management Assessment (FMA) for the Multi-tranche Financing Facility for the Sustainable Highlands Highway Investment Program (SHHIP) of the Department of Works (DOW) was prepared in accordance with ADB's Technical Guidance Note for financial management.<sup>7</sup> The FMA includes a review of the accounting and reporting system, internal and external auditing arrangements, fund disbursement procedures, and information systems. A previous FMA of the DOW was undertaken for the Highlands Region Road Improvement Investment Program (HRRIIP)<sup>8</sup> in 2009 and the last update was prepared in July 2016 for Tranche 3.

48. Public financial management. PNG has made progress in strengthening its budgeting system through broad adherence to three successive five-year medium-term fiscal strategies since 2002. However, while the budget process aligns allocations well with priority sectors, many of the projects which are funded have often not had sufficient levels of preparatory and feasibility work undertaken to enable timely implementation. This misalignment requires government agencies to rush designs, cost estimates, and tenders, which often leads to delays in contract implementation. Delays lead to underspending, and the practice of "parking" funds in trust accounts. Other concerns include a lack of adherence to established rules and processes and the weakness of government agencies with regard to accounting and financial reporting, cost recovery mechanisms.

49. Public procurement. The government reformed its procurement processes in 2003–2009, which included the creation of the Central Supply and Tender Board to develop and oversee the procurement system. However, capacity limitations within the board and within implementing agencies responsible for procurement continue to delay project execution and reduce transparency. Additional concerns exist about project management, supervision, and monitoring, as well as the limited albeit growing capacity of private sector contractors.

50. The main challenge is to ensure that the institutions and staff involved have the capability to put into practice the rules, procedures, and controls that are already in place. This makes the continued development of a professional cadre in public procurement important, as is the need to undertake skills development of frontline staff to properly execute government procedures. Particular vulnerabilities in the procurement system include (i) low internal audit capability and poor procurement planning in public sector agencies, and (ii) inadequate monitoring of implementation of procurement decisions and appropriate quality assurance of services provided.

51. Combating corruption. Despite recent attempts to create new anticorruption institutions, the general perception remains that corruption is endemic in PNG. The results of Transparency International's 2016 Corruption Perceptions Index gives PNG a score of 28 (out of 100), placing the country 136 out of 176, a marked improvement from 2009 where it ranked 154 out of 180 with an equivalent score of 21. Although it should a slight improvement, serious problems persist. Some observers go so far as to say official corruption and the misappropriation / theft of public funds are the country's most significant governance issue.

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<sup>7</sup> ADB. 2015. *Financial Management Assessment Technical Guidance Note*.

<sup>8</sup> Also a multi-partner financing facility



52. Management and skills capacity. Human resource capacity remains a key challenge for PNG at the national, provincial and local government levels. The few qualified and skilled persons available are often lured into private sector employment or into development partners' funded projects that pay a far higher salary than that paid by the public service. Given this scenario, development partners' funded projects have often relied on the use of project management units (PMUs) to manage and report on funding of public work programs delivered through the different ministries. In an effort to close the skills gap between finance staff employed by the PMUs and those employed in the mainstream ministries, the development partners often include as part of their exit strategies, a training and capacity building component in the funding assistance provided.

53. Entity FMA. The assessment found that while the EA is currently employing capable and committed staff, the agency needs further strengthening of the procurement and internal auditing functions.

54. Staffing. The proposed Investment Program will be administratively managed through a PMO that will be established based on the lessons learned from the existing DOW-PIU for HRRIP. The PMO will be headed by a Project Director. The Director will be assisted by an international Project Coordinator and an experienced international Financial Specialist. The international staff will be reinforced with additional national technical, accounting and administrative staff. The proposed structure of the PMO is presented in the proposed Facility Administration Manual (FAM). Strict compliance with loan covenants will be enforced.

55. As with HRRIP, the procurement function in the DOW, including provincial DOW offices, is effectively managed by an experienced First Assistant Secretary with support of qualified staff and opportunities for training. Generally, staff at the DOW and in the provinces appears to be familiar with the process and apply it methodically, although the process is not documented in a systematic way.

56. Financial Procedures and Reporting. Financial control procedures for the DOW-PMO will follow the Department of Treasury's financial management manual. Previous external audit reports in HRRIP highlighted issues regarding the preparation of financial statements not conforming to international standards and that audit recommendations are not acted upon. For the SHHIP, it is envisaged that the financial management arrangements will be regularly monitored for compliance with loan covenants and that audit recommendations will be acted upon expeditiously.

57. A program steering committee (PSC) has been established to aid in the coordination across all aspects of the program. The PSC comprises representatives of key stakeholders from the GoPNG. The PSC will oversee all aspects of the SHHIP and will meet quarterly, or more frequently as required, for the duration of the program.

58. The PMO will ensure project outputs are produced on time and within budget, and ensure effectiveness in achieving the project's outcome by (i) managing the planning and implementation of the project; (ii) undertaking project management, including coordination within the DOW and with outside stakeholders; (iii) engaging and managing consultants (for detailed design, construction supervision and implementation support); (iv) managing project financing, accounting, and auditing; (v) undertaking monitoring, evaluation, and reporting of project progress; (vi) monitoring key project approvals.

59. Financial Reporting System. The DOW has recently upgraded its financial management system (FMS). The new integrated FMS is the main business critical financial application that has enhanced the coordination between DOW headquarters and the provinces. Moreover, the upgraded DOW system allows integration with the Departments of Treasury (DOTR) and shares budgetary items and expenditures through a monthly report system. Through the IFMS, DOTR will be able to monitor fund usage in real time. DOW plans to roll-out the IFMS to the regions and provinces by the end of 2016.

60. Internal Audit. The DOW IAD was re-established in 2008 and conducts financial and compliance audits. The internal audit division is gradually expanding its operations to the field offices to verify the progress and expenditures incurred in the respective province. As its capacity and resources grow, the internal audit division will undertake regular audit of the provincial and special project offices. Recently, a technical audit was included in its audit program. The DOTR has strengthened internal audit in government departments and provinces through the establishment and operation of audit committees. In addition, DOTR has seconded a Financial Controller to DOW that has resulted in promoting good governance, transparency, and accountability. This also enables issuance of audit certificates to various development partner-funded projects on a timely basis.

61. The IAD conducts post audits of transactions in DOW, but does not include those of ADB financed projects. Also, the IAD auditors have never participated in any ADB sponsored training and therefore are not aware of the ADB financial management reporting requirements. The IAD staff should be included in all future ADB trainings so that they will be knowledgeable of the requirements, policies and procedures of ADB and include all ADB projects in its annual audit program. However, the IAD will have to recruit more staff before it can expand its audit coverage. The performance of internal audits of all ADB programs and projects will be in addition to external audits.

62. External Audit. It is mandatory for ADB funded projects to have the annual financial statements audited by independent auditors acceptable to ADB. The financial statements of the program will be audited annually by an independent external auditor appointed by the AGO and acceptable to ADB. External audits performed by the AGO through independent external auditors are in accordance with audit standards issued by the International Organization of Supreme Audit Institutions (INTOSAI) and accounting standards issued by the International Federation of Accountants (IFAC). DOW will submit to ADB certified copies of audited annual project financial statements as well as the auditor report in English within six months of each financial year-end during implementation. The AGO has issued unqualified reports for previous financial years.

63. The FMA specifically categorized types of inherent and control risks. Inherent Risk is the susceptibility of the project financial management system to factors arising from the environment in which it operates, such as country rules and regulations and entity working environment (assuming absence of any counter checks or internal controls) and capacity of project implementation staff. Control Risk is the risk that the project's accounting and internal control framework are inadequate to ensure project funds are used economically and efficiently and for the purpose intended, and that the use of funds is properly reported.

64. A summary of the FMA analysis for Inherent and Control risk is shown in the table below. The risk assessment on the overall project financial management, pre-mitigation, is assessed to be Substantial.

<b>Risk Description</b>	<b>Impact</b>	<b>Likelihood</b>	<b>Risk Assessment</b>	<b>Mitigation Measures</b>
<b>Inherent Risk</b>				
1. Country Specific				
1.1 Weak public financial management system due to the delayed implementation of the IFMS in all government departments. Some government departments still use PGAS which is not compatible to the IFMS	Substantial	Likely	Substantial	ADB supported strengthening of GoPNG PFM systems through the Financial Management Improvement Program. GoPNG should rollout IFMS to all government departments as soon as possible to get everyone online with the new FMS. Since IFMS is integrated with DOTR, it will be easier to check on activities within the government financial system.
1.2 PNG's shortage of foreign currency reserves, limited access to international credit markets, and heavy reliance on commodity prices suggest there is a significant macroeconomic country risk	High	Likely	High	Continuous monitoring by ADB of macroeconomic conditions; assessment of impacts of external shocks, particularly with respect to commodity prices; coordination with other development partners; and potentially other forms of assistance.
1.3 Persistent lack of reliable accounting records due to shortage of skills in accounting and financial management	High	Likely	High	Upgrade skills capacity through rigorous training of finance and accounting personnel in accounting and financial management and reporting. Strengthen internal audit function to ensure that bank reconciliations are conducted regularly and on time.
1.4 Weak internal controls due to delays in the timely submission of annual financial statements for audit	Substantial	Likely	Substantial	Strict monitoring by DOTR on the timely preparation of annual financial reports. The rollout of the IFMS to all government departments will enhance coordination and monitoring by DOTR
2. Entity Specific – Although DOW was one of the first departments to use the IFMS, this has not been rolled out to all the DOW regions and provinces	Substantial	Likely	Substantial	DOW plans to rollout IFMS to the regions and provinces by December 2016. DOW should exert efforts to keep to this schedule and in the meantime conduct rigorous training of regional and provincial DOW personnel on the use of the new system.
<b>Overall Inherent Risk</b>	<b>Substantial</b>			

<b>Control Risk</b>				
1. Implementing Entity – management and skills capacity in financial management is low	Substantial	Likely	Substantial	The ADB and DFAT have been providing capacity-development and institutional support throughout the sector but more targeted training and capacity development should be conducted to address the low levels in skills and competency in financial management. Training on ADB's loan disbursement to build the FM capacity of finance and accounting staff.
2. Funds Flow – GoPNG's ability to provide counterpart funding is in question due to budget constraints resulting from lower than expected government revenues	Substantial	Likely	Substantial	ADB's direct payment will be adopted to pay ADB and EIB share of project cost. GoPNG assurance that adequate and timely counterpart funds are to be provided will be included in the loan agreement. Use of imprest account is not recommended. Training on ADB's loan disbursement to build the FM capacity of finance and accounting staff.
3. Accounting Policies and Procedures – the project does not have written accounting policies and procedures	Moderate	Likely	Moderate	Financial management is governed by the PFMA, however, it is recommended that the PMO develop a financial management manual that details all financial management and procurement procedures to ensure consistency in project implementation. Training on ADB's loan disbursement to build the FM capacity of finance and accounting staff.
4. Staffing - Lack of qualified finance and accounting personnel in the regions and provinces to implement the project	Substantial	Likely	Substantial	Rigorous and targeted training of all finance and accounting staff in the regions and provincial office of DOW. Training should be conducted by DOTR personnel since they are the systems administrator for IFMS. Training on ADB's loan disbursement to build the FM capacity of finance and accounting staff.

5. Internal Audit – internal audit division in DOW is not performing audits of the project	Substantial	Likely	Substantial	Internal audit unit in DOW should include the Investment Program in its annual audit plan to ensure that the outputs are being implemented according to ADB guidelines. Before this can be achieved, the internal audit division in DOW should be included in all ADB sponsored trainings on financial management and procurement and additional staff to perform audits will have to be recruited
6. External Audit – financial statements were not prepared in accordance with international accounting standards and audit recommendations are not acted upon	Substantial	Likely	Substantial	Audit reports and findings should be monitored and to immediately address issues identified.
7. Reporting and Monitoring – delays in providing financial reports to DOW central office by regional and provincial offices	Substantial	Likely	Substantial	Regular coordination meeting should be conducted by the PSC to thresh out problems early and to avoid delays in the preparation of reports. Include the project in the audit plan of the IAD
8. Information Systems – DOW regional and provinces offices still use PGAS while DOW central office uses IFMS. The 2 systems are not compatible as the chart of accounts in PGAS differ from that of IFMS. Integration requires manual transfer of data into IFMS. This makes it prone to errors and fraud and cannot be relied upon	Substantial	Likely	Substantial	DOW should hasten the implementation of the IFMS to include all regional and provincial offices to have only a unified system. DOF should conduct training on the use of the IFMS
<b>Overall Control Risk</b>			<b>Substantial</b>	
<b>Overall (Combined) Risk</b>			<b>Substantial</b>	

65. Among the risks the FMA identified, substantial financial management risks included: (i) weak accounting and reporting capacity, weak internal control, and weak budgeting and reporting mechanisms. Since these risks were assessed to be substantial, specific mitigating actions are required to minimize the risks.

66. As such, the following initial Financial Management Action Plan has been prepared based on the basic principles of sound financial management practices in the areas of (i) internal control, (ii) funds flow, (iii) accounting and financial reporting, and (iv) independent audits. This action plan

will be updated annually based on discussions with the government as well as based on the results of the annual fiduciary reviews conducted.

<b>Weakness</b>	<b>Mitigating Action</b>	<b>Responsibility</b>	<b>Timeframe</b>
Staff capacity is low	Intensive training on ADB procedures to include but not limited to financial management and procurement	ADB	Within six months of loan effectiveness
Delays in the preparation of withdrawal applications will lead to insufficient funds	Ensure that project related expenditures are reimbursed more frequently to ensure that DOW main trust account and sub-accounts will be replenished on time.	DOW	Monthly monitoring
Lack of regular internal audits of project accounts	Mandate the internal audit division of the DOW to conduct monthly audits of the project to ensure that all financial transactions comply with established policies and procedures	DOW	At loan effectiveness, DOW will mandate the internal audit division to include the project in its annual audit plan and to conduct regular monthly audits. This will be included as part of the loan covenants.  DOW to ensure that the internal audit division will have sufficient and capable staff in the internal audit unit to perform the increased tasks. New internal auditors to be hired at loan effectiveness
External Audit observations are not being acted upon	Rigorous monitoring by DOW and DOF of any current external audit observations and audit issues should be resolved quickly.	DOW and PSC	Annual Monitoring
Use of a unified financial management reporting system	Immediate rollout of the IFMS to the regions and provinces	DOW and DOTR	Prior to loan effectiveness

67. In general, the risk mitigation measures have been reflected in the design of the project and are incorporated into the financial management procedures as set out in this FAM. In particular, the program will be managed through a PMO and reinforced with additional national staff. The PMO will be located in Goroka to bring the management of the program closer to the project site. Strict compliance with loan financial covenants will be enforced.

68. To improve the financial management and internal audit function, Tranche 1 will mobilize an international Financial Management Expert in the PMO to establish a robust financial accounting system and internal audit mechanism and this is envisaged to continue for future tranches, Tranches 2 and 3.

## **B. Disbursement**

69. The Loan and Grant proceeds will be disbursed in accordance with ADB's Loan Disbursement Handbook (2015, as amended from time to time),<sup>9</sup> and detailed arrangements agreed upon between the Government and ADB. Online training for project staff on disbursement policies and procedures is available at: [http://wpqr4.adb.org/disbursement\\_elearning](http://wpqr4.adb.org/disbursement_elearning). Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

70. Only reimbursement and direct payment procedures will be used under the project. DOW will be responsible for preparing disbursement projections. DOW will maintain project accounts. Reimbursement will be forwarded to DOW maintained project accounts. DOW will coordinate internally within GoPNG to arrange allocation of counterpart funds for individual projects. DOW will be responsible for collecting supporting documents, preparing withdrawal applications and submitting to ADB.

71. Before the submission of the first withdrawal application, the government should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is \$100,000 equivalent. Individual payments below this amount should generally be paid by the EA/IA and subsequently claimed to ADB through reimbursement, unless otherwise accepted by ADB.

72. For government contribution, contractors will submit claims to DOW which will be met from DOW budget.

## **C. Accounting**

73. DOW will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project. DOW will prepare consolidated project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices.

## **D. Auditing and Public Disclosure**

74. DOW will subject the detailed project financial statements to be audited in accordance with International Standards on Auditing by an auditor acceptable to ADB. The audited project financial statements will be submitted in the English language to ADB within 6 months of the end of the fiscal year by DOW. DOW will appoint the external auditors to review the annual project financial statements. The costs of annual audits to be undertaken by independent auditors will be funded by the ADB. Compliance with project financial reporting and auditing requirements will be monitored by review missions and during implementation, and will be followed up regularly with all concerned.

75. ADB's guidelines require that the borrower and the project executing agency have the required financial statements for each year prepared under an acceptable financial reporting framework audited by an independent auditor acceptable to ADB and that the audit be conducted in accordance with auditing standards that are also acceptable to ADB. To ensure that ADB is

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<sup>9</sup> Available at: [http://www.adb.org/Documents/Handbooks/Loan\\_Disbursement/loan-disbursement-final.pdf](http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf)

provided with reliable, comprehensive, and timely information, the following is required on an annual basis:

- (i) Audited Project Financial Statements
- (ii) Specific additional audit opinions on:
  - Use of project financing - to confirm whether the borrower or executing agency has utilized all proceeds of the project financing only for purposes of the project.
  - Compliance with financial covenants (where applicable) - to confirm or otherwise, that the borrower or executing agency was in compliance with the financial covenants of the loan or grant agreement.
  - Management Letter

76. Public Disclosure. ADB's Public Communication Policy 2011 requires disclosure of project documents including uploading of audited financial statements to the ADB website within 30 calendar days upon receipt by ADB: (i) subject to government's approval and (ii) only the project audit report. Financial statements of the implementing agency and the management letter are not disclosed.

77. The government has been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited accounts. 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.

## **VI. PROCUREMENT OF WORKS AND CONSULTING SERVICES**

### **A. Advance Contracting**

78. All advance contracting will be undertaken in conformity with ADB's Procurement Guidelines (2015, as amended from time to time) (ADB's Procurement Guidelines)<sup>10</sup> and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time) (ADB's Guidelines on the Use of Consultants).<sup>11</sup> The issuance of invitations to bid, bidding document, bid evaluation report, and draft contract under advance contracting will be subject to ADB approval. The government and DOW have been advised that approval of advance contracting does not commit ADB to finance the Investment Program.

79. Approval of advance recruitment of the Construction Supervision Consultants and civil works packages will be sought from ADB when required.

### **B. Procurement of Goods, Works and Consulting Services**

80. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines.

81. International competitive bidding (ICB) procedure will be used for civil works contracts estimated to cost \$5,000,000 or more, and for goods contracts estimated at \$2,000,000 or more. National competitive bidding (NCB) procedure will be used for civil works contracts estimated to

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<sup>10</sup> Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>

<sup>11</sup> Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>



cost up to or equal to \$5,000,000 and for goods up to or equal to \$2,000,000. Shopping will be used for contracts works and goods contracts worth less than \$300,000.

82. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is presented in Section C.

83. All consultants will be recruited according to ADB's Guidelines on the Use of Consultants.<sup>12</sup> The terms of reference for all consulting services are detailed in Section E.

84. An estimated 2,687 person-months (918 international, 1,769 national) of consulting services are required in Tranche 1 to provide: (i) construction supervision of road improvement, rehabilitation, repair and maintenance work, (ii) design and construction supervision for the PMO building, (iii) preparatory studies and design services for the bridge improvement program and Goroka bypass, (iv) preparatory studies for the development of trade and logistics platforms, and (v) capacity building for DOW. Consulting firms other than the architect for the PMO building will be engaged using Quality and Cost Based Selection (QCBS) (90-10). The architect will be selected by a Consultants' Qualifications Selection procedure to fast track this work. Consulting services in the PMO and for providing DOW capacity building will be procured principally through individual consultants using ADB's Consultant Management System (CMS).

## C. Procurement Plan

### Basic Data

<b>Project Name:</b>	<b>Sustainable Highlands Highway Investment Program – Tranche 1</b>	
<b>Country:</b>	Papua New Guinea	<b>Approval №:</b>
<b>Project Procurement Classification:</b>	Category B	<b>Project №:</b> 48444
<b>Procurement Risk:</b>	Moderate <sup>13</sup>	<b>Executing Agency:</b> Department of Works
<b>Project Financing Amount:</b>	\$357.5 million	<b>Implementing Agency:</b> Department of Works, National Road Authority, Department of Transportation, and Road Traffic Authority
• ADB Financing:	\$30.0 million (COL loan) \$272.0 (OCR loan)	
• Cofinancing:	\$11.5 million (GoA, ADB administered)	
• Non-ADB Financing:	\$44.0 million (government counterpart contribution)	<b>Project Closing Date:</b>
<b>Date of First Procurement Plan:</b>	to be updated	<b>Date of this Procurement Plan:</b> 8 May 2017

GoA = Government of Australia

<sup>12</sup> Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbooks/project-implementation/>

<sup>13</sup> The rating is based on a number of assessments of procurement risk in PNG undertaken in the past decade, including those by the World Bank/ADB (*PNG Country Procurement Assessment Report, 2006*), Central Supply & Tenders Board (*PNG Procurement Assessment Report using the OECD-DAC Methodology for Assessing Procurement Systems, 2010*), AusAID (*Assessment of Government Partner Procurement Capability and Capacity, and Associated Procurement Risk – PNG-Australia Transport Sector Support Program*, Charles Kendall and Partners, April 2011), and ADB (*Project Procurement Risk Assessment, Multi-Tranche Financing Facility: Sustainable Highlands Highway Investment Program, Tranche 1, Department of Works, Nov 2016*). These assessments highlight significant problems in PNG's procurement systems and, accordingly, procurement implementation risk is regarded as 'high'. A 'moderate' rating for the project recognises the mitigations that apply

a. **Methods, Thresholds, Review and 18-Month Procurement Plan**

i. **Procurement and Consulting Methods and Thresholds**

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

**Procurement of Goods and Works**

<b>Method</b>	<b>Threshold</b>	<b>Comments</b>
International Competitive Bidding (ICB) for Works	\$5 million and above	Prior Review
International Competitive Bidding for Goods	\$2 million and above	Prior Review
National Competitive Bidding (NCB) for Works	Beneath that stated for ICB, Works	First use, Prior
National Competitive Bidding for Goods	Beneath that stated for ICB, Goods	First use, Prior
Shopping for Works / Goods	Below \$300,000	Post

**Consulting Services**

<b>Method</b>	<b>Comments</b>
Quality- and Cost-Based Selection for Consulting Firm	Prior review
Consultants' Qualifications Selection	Prior review
Quality-Based Selection for Consulting Firm	Prior review
Individual Consultants Selection for Individual Consultant	Prior review

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

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

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including the primacy of ADB procedures, involvement of international consultants in project procurement and supervision, and provision of capacity building of DOW staff assigned to the project.

Package No	General Description	Estimated Value (US\$ mill)	Procurement Method	Review (Prior / Post)	Bidding / Procedure	Advertisement Date (qtr/year)	Comments
1	Civil Works Road Contract 1 (CW1)	90.68	ICB	Prior	1S1E	Q2, 2017	SBD Large Works w/- post qualification No Domestic Pref.
2	Civil Works Road Contract 2 (CW2)	75.54	ICB	Prior	1S1E	Q2, 2017	SBD Large works w/- post qualification No Domestic Pref.
3	Road Investment Contract (RIC)	59.23	ICB	Prior	1S1E	Q2, 2017	SBD Large works w/- post qualification No Domestic Pref.
4.	PMO office construction contract	1.59	NCB	Prior	1S1E	Q3, 2017	SBD Small Contracts w/o prequalification.

ICB = International Competitive Bidding; NCB = National Competitive Bidding, 1S1E = Single Stage One Envelope.

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

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

Package No	General Description	Estimated Value \$ mill.	Recruitment Method	Review (Prior / Post)	Advertisement Date (qtr. / year)	Type of Proposal	Comments
1	Preparatory studies and works supervision of CW1 road maintenance and upgrading.	16.41	QCBS	Prior	Q3, 2017	FTP	International QCBS 90:10
2	Preparatory studies and works supervision of CW2 road maintenance and upgrading; Supervision of the RIC contract; Feasibility study and DDE of the Goroka Bypass.	29.10	QCBS	Prior	Q3, 2017	FTP	International QCBS 90:10
3	Preparatory studies, DDE and procurement for Bridge Improvement Program.	1.82	QCBS	Prior	Q4, 2017	FTP	International QCBS 90:10
4.	Design and works supervision of PMO office, Goroka.	0.22	CQS	Prior	Q2, 2017	STP	National Architectural Services
6.	Individual Consultants for DOW Support and Capacity Building	6.51	ICS	Prior	Q3, 2017		International and National
7.	Road Safety Community Support.	0.40	QBS	Prior	Q4, 2017	STP	National; NGO

CMS = Consultant Management Systems, CQS = Consultants Qualifications Selection, FTP = Full Technical Proposal;

QCBS = Quality and Cost Based Selection; QBS = Quality Based Selection, STP = Short Technical Proposal

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

88. The following table lists smaller-value goods, works and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months.

<b>Goods and Works less than \$1 million <sup>14</sup></b>								
<b>Package No</b>	<b>General Description</b>	<b>Est. Value (US\$ mill)</b>	<b>No of Contracts</b>	<b>Procurement</b>	<b>Review (Prior Post)</b>	<b>Bidding / Procedure</b>	<b>Advertisement Date</b>	<b>Comments</b>
1	Implementation Support: Vehicles and field equip.	1.65	TBD	NCB	Prior	Goods 1S1E	Q3, 2017	Goods SBD (Incl. 30 vehicles)
2	Implementation Support: Office furniture & equip.	0.38	TBD	NCB	Prior	Goods 1S1E	Q3, 2017	Goods SBD
3	Other	3.93	TBD					

TBD = to be determined

<b>Consulting Services less than \$100 000</b>							
<b>Package No</b>	<b>General Description</b>	<b>Est. Value (US\$ mill)</b>	<b>No of Contracts</b>	<b>Recruitment</b>	<b>Type Proposal</b>	<b>Advertisement Date</b>	<b>Comments</b>
None							

**b. Indicative List of Packages Required Under the Project**

89. 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 for Tranche 1 (i.e. those in Tranches 2 and 3).

**Goods and Works:**

<b>Package No</b>	<b>General Description</b>	<b>Estimated Value (US\$ mill)</b>	<b>Procurement Method</b>	<b>Bidding Procedure</b>	<b>Advertisement Date (qtr / year)</b>	<b>Comments</b>
<b>Tranche 2:</b>						
1	CW1, including maintenance of upgraded bridges on their completion.	100.89	ICB	1S1E		SBD Large Works w- post qualification No Domestic Pref.

<sup>14</sup> The Implementation Support budget item of \$5.33 million is expected to be expended on (a) PMO building design & supervision (\$0.201 million), (b) PMO building construction (\$2.10 million), and (c) a number of small predominantly goods contracts (total \$3.12 million). The latter has been provisionally included in the table of 'Goods and Works less than \$1 million' until details of the number, size and nature of the packages have been determined.

Package No	General Description	Estimated Value (US\$ mill)	Procurement Method	Bidding Procedure	Advertisement Date (qtr / year)	Comments
2	CW2, including maintenance of completed RIC section and upgraded bridges.	76.89	ICB	1S1E		SBD Large works w- post qualification No Domestic Pref.
3	Bridge Improvement Program.	88.71	ICB	1S1E		SBD Large works w- post qualification No Domestic Pref.

**Tranche 3:**

1	CW1, including maintenance of upgraded bridges and Kassam Pass climbing lanes on their completion.	27.51	ICB	1S1E		SBD Large Works w/o prequalification No Domestic Pref.
2	CW2, including maintenance of completed RIC section, upgraded bridges & Daulo Pass climbing lanes.	28.71	ICB	1S1E		SBD Large works w/o prequalification No Domestic Pref.
3	Construction of a 2-lane bypass of Goroka.	67.32	ICB	1S1E		SBD Large works w/o prequalification No Domestic Pref.
4	Construction of truck climbing lanes at Kassam and Daulo Passes.	16.83	ICB	1S1E		SBD Large works w/o prequalification No Domestic Pref.
5	Construction of trade & logistics platforms in Goroka and Minj.	6.60	ICB	1S1E		SBD Small works w/o prequalification No Domestic Pref.
6	Construction of weigh stations in Goroka and Minj.	4.40	ICB	1S1E		SBD Small works w/o prequalification No Domestic Pref.

ICB = International Competitive Bidding; SBD = Standard Bidding Document; 1S1E = Single Stage One Envelope

**Consulting Services:**

Package No	General Description	Estimated Value (US\$ mill)	Recruitment Method	Advertisement Date (qtr. / year)	Type of Proposal	Comments
<b>Tranche 2</b>						
1	Works supervision of CW1 maintenance and upgrading Preparatory studies and DDE for Kassam Pass climbing lanes.	14.62	QCBS	Q1, 2021	FTP	International

Package No	General Description	Estimated Value (US\$ mill)	Recruitment Method	Advertisement Date (qtr. / year)	Type of Proposal	Comments
2	Works supervision of CW2 maintenance and upgrading Preparatory studies and DDE for Daulo Pass climbing lanes; Land acquisition and procurement for Goroka Bypass.	11.24	QCBS	Q1, 2021	FTP	International
3	Works supervision for the Bridges contract.	12.42	QCBS	Q1, 2020	FTP	International
4	Preparatory studies, DDE and procurement for the Weigh Stations	0.26	QCBS	Q1, 2022	STP	International
5.	Design and works supervision of Trade & Logistics Platforms	0.40	QCBS	Q4, 2017	STP	International
5	Individual Consultants for DOW Support and Capacity Building	13.18	ICS	Q1, 2021		International and National
6	Road Safety Community Support.	0.66	QBS	Q1, 2021	STP	National; NGO
<b>Tranche 3</b>						
1	Works supervision of OPRC1 maintenance and upgrading. Works supervision of Kassam Pass climbing lanes.	5.03	QCBS	Q1, 2023	FTP	International
2	Works supervision of OPRC2 maintenance and upgrading. Works supervision of Goroka Bypass. Works supervision of Daulo Pass climbing lanes.	14.60	QCBS	Q1, 2023	FTP	International
3	Works supervision for Logistics Platforms.	0.92	QCBS	Q1, 2023	FTP	International
4	Works supervision and operations oversight for Weigh Stations.	0.62	QCBS	Q1, 2023	STP	International
5	Individual Consultants for DOW Support and Capacity Building.	6.60	ICS	Q1, 2023		International and National
6	Road Safety Community Support.	0.22	QBS	Q1, 2023	STP	National; NGO

ICS = Individual Consultant Selection; QCBS = Quality and Cost Based Selection; QBS = Quality Based Selection  
 FTP = Full Technical Proposal; STP = Short Technical Proposal

## D. National Competitive Bidding

### 1. General

90. National competitive bidding (NCB) shall conform to the provisions set in the Public Financial Management Act (PFMA) as issued in 1995 and amended in 2003, and the specific procedures prescribed in the Financial Instructions (FIs) issued in 2005, with the clarifications and

modifications described in the following paragraphs required for compliance with the provisions of ADB Procurement Guidelines.

## **2. Participation in Bidding**

- (i) Government-owned enterprises in Papua New Guinea shall be eligible to bid only if they can establish that they are legally and financially autonomous, operate under commercial law, and are not a dependent agency of the Borrower/Executing Agency/Implementing Agency.
- (ii) Foreign bidders shall be eligible to participate in bidding under the same conditions as national bidders.
- (iii) Bidding shall not be restricted to preregistered firms and such registration shall not be stated in the bidding documents as a condition for the submission of bids. Where registration is required prior to award of contract, bidders: (i) shall be allowed a reasonable time to complete the registration process; and (ii) shall not be denied registration for reasons unrelated to their capability and resources to successfully perform the contract, which shall be verified through post-qualification.

## **3. Classification of Contractors; Qualification; Post-qualification**

- (i) Post qualification shall be used unless prequalification is explicitly provided for in the loan agreement/procurement plan.
- (ii) Bidding shall not be restricted to any particular class of contractors, and non-classified contractors shall also be eligible to bid. Qualification criteria (in case prequalification was not carried out) shall be stated in the bidding documents, and before contract award, the bidder having submitted the lowest evaluated responsive bid shall be subject to post-qualification.

## **4. Conflict of Interest**

Bidders may be considered to be in conflict of interest with one or more parties in this bidding process if, including but not limited to:

- (i) they have controlling shareholders in common, or
- (ii) they receive or have received any direct or indirect subsidy from any of them; or
- (iii) they have the same legal representative for purposes of this bid; or
- (iv) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid or another Bidder, or influence the decisions of the Employer regarding this bidding process; or
- (v) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the party is involved. However, this does not limit the inclusion of the same subcontractor in more than one bid; or
- (vi) a Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract is the subject of the Bid; or
- (vii) a Bidder or any of its affiliates has been hired (or is proposed to be hired) by the Employer or Borrower as Engineer for the contract.

## **5. Preferences**

No preference shall be given for domestic bidders and for domestically manufactured goods.

#### **6. Advertising, time for bid preparation**

- (i) Invitations to bid shall be advertised in at least one newspaper of national circulation or freely accessible and well-known website, allowing a minimum of 4 weeks for the preparation and submission of bids, such 4 weeks' period to begin with the availability of the bid documents or the advertisement, whichever is later.
- (ii) Bidding of NCB contracts estimated at below \$2,000,000 for goods and related services, or below \$5,000,000 for civil works, shall be advertised on ADB's website via the posting of the Procurement Plan.

#### **7. Standard Bidding Documents**

Until national standard bidding documents approved by ADB are available, bidding documents acceptable to ADB should be used.

#### **8. Bid Security**

If required by the bidding documents, bid security shall be in the form of a bank guarantee from a reputable bank. A bidder's bid security shall apply only to a specific bid.

#### **9. Bid Opening and Bid Evaluation**

- (i) Bidders may deliver bids, at their option, either in person or by courier service or by mail.
- (ii) Bidders shall not be allowed to amend their tenders after the closing date and time for submission of bids.
- (iii) Bids shall be opened in public, immediately after the deadline for submission of bids. No bid shall be rejected during bid opening. The name of the bidder, the total amount of each bid, and any discounts shall be read aloud and recorded in the minutes of the public bid opening.
- (iv) Evaluation of bids shall be made in strict adherence to the Qualifications and Evaluation Criteria stipulated in the bidding documents
- (v) No bidder shall be rejected merely on the basis of a comparison with the employer's estimate and budget ceiling without ADB's prior concurrence.
- (vi) The Contract shall be awarded to the technically responsive bidder that offers the lowest evaluated price, and meets the qualifying criteria. In determining the lowest evaluated price, the following are to be considered: (i) bid price, as offered, (ii) arithmetical corrections on the bid price, if any, and (iii) monetary value of the evaluation criteria that are stated in the bidding document.

#### **10. Rejection of Bids**

Bids shall not be rejected and new bids solicited without ADB's prior concurrence.

#### **11. Extension of the Validity of Bids**

In exceptional circumstances and with prior ADB approval, the procuring entity may, before the expiration of bid validity, request all bidders in writing to extend the validity of their bids.



In such a case, bidders shall not be requested nor permitted to amend the price or any other condition of their bid. Bidders shall have the right to refuse to grant such an extension without forfeiting their bid security, but bidders granting such an extension shall be required to provide a corresponding extension of their bid security.

## **12. Disclosure on Contract Awards**

At the same time that notification on award of contract is given, the Borrower /Executing Agency/Implementing Agency shall publish the following information on contract award on a free and open access website or other means of publication acceptable to ADB: (i) name of each bidder who submitted a bid; (ii) bid prices as read out at bid opening; (iii) name and evaluated price of each bid that was evaluated; (iv) names of bidders whose bids were rejected and the reasons for the rejection; and (v) name of the winning bidder, price it offered as well as the duration and summary scope of the contract awarded. The Executing/Implementing Agency shall respond in writing to unsuccessful bidders who seek explanations on the grounds on which their bids are not selected.

## **13. No Negotiations**

There shall be no negotiations, even with the lowest evaluated bidder, without ADB's prior concurrence. A bidder shall not be required, as a condition of award, to undertake obligations not specified in the bidding documents, or otherwise, to modify the bid as originally submitted.

## **14. Inspection and Auditing**

Each contract financed from the proceeds of a Loan/Grant shall provide that the contractor/supplier shall permit ADB, at its request, to inspect their accounts and records relating to the performance of the contract and to have said accounts and records audited by auditors appointed by ADB.

## **15. Member Country Restriction**

Bidders must be nationals of member countries of ADB, and offered goods must be produced in and supplied from member countries of ADB.

## **E. Consultant's Terms of Reference**

91. The main elements of the SHHIP will be the consulting services by engineering firms undertaking contractor supervision and ensuring contractual compliance by the contractors, and the technical assistance comprising a core management team leading with guidance and authority of the PSC and the PMO made up of DOW staff appointed to the SHHIP and international and national consultants.

92. Consulting services will be provided for preparatory studies, design services and construction supervision associated with the works, and additionally for support services including architectural design and supervision of the PMO building and capacity building for the of the DOW staff. Outline terms of reference (TORs) for these services are provided in Appendix 1.

93. Institutional strengthening will be provided comprising SHHIP management and the Program Management Office responsible for implementation support and capacity building. The rationale required for this has been explained above in Section III. The core management team will comprise 4 key positions at least through Tranche 1 and will be led by a Program Director appointed from the DOW, reporting directly to the PSC and with authority to direct program and project activity.

94. The terms of reference for international and national consulting positions under the PMO are provided below:

<b>INTERNATIONAL CONSULTANTS</b>	
International Team Leader (International, 40 person-months)	<p><u>Purpose:</u> The International Team Leader will support the Program Steering Committee (PSC) and the Program Director in leading the program planning, strategy development, systems strengthening and implementation, and operations of the Program Management Office (PMO) to ensure that compliant, efficient, and effective actions are taken to achieve planned SHHIP planned objectives, outcomes and outputs.</p>
	<p><u>Scope:</u> The International Team Leader will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and will advise and assist the PSC members and the Program Director in all engineering matters, coordinate the work of all TA, and strengthen management teamwork. S/he will work closely with engineering supervisors, civil works contractors, DOW managers, community representatives, other agencies involved in the sector, international aid donors, other projects, as well as PSC and PMO members.</p>
	<p><u>Responsibilities:</u> Within the overall scope, the key tasks of the International Team Leader will be, to: (i) Lead work program planning and scheduling for SHHIP's annual work program and identify financial and personal resource and system needs; (ii) Lead and manage technical assistance so that consultants and experts are mobilized as and when needed and planned mission outputs are achieved; (iii) Advise on road infrastructure civil works and maintenance, so that engineering decisions reflect best possible practice for the context; (iv) coordinate with and advise the PSC, DOW, DOT, NRA, Treasury, and other relevant agencies regarding engineering and financing planning and implementation issues, opportunities, strategies; (v) Lead improvements and utilize systems for planning (including asset management), design (including gender responsive features), implementation, supervision and quality assurance of maintenance, rehabilitation and new works, according to required guidelines and operations manuals; (vi) Lead the SHHIP in the development and monitoring of annual budgets; (vii) Work with provincial and district administration officers, coaching and improving their knowledge and performance in managing subprojects; (viii) Ensure the sound management of SHHIP including administration, integration of work processes across functions (eg engineering, safeguards and finance), project implementation, and monitoring, recording and reporting of progress; (ix) Ensure the development of reports for monthly progress of subprojects against plan, as well as environmental, social, and gender</p>

	<p>aspects; (xi) Ensure project monitoring and compliance with donor reporting requirements; and (xii) Submit regular and timely reports as required (monthly, quarterly, annual and project completion, results verification reports) to PSC and development partners.</p>
	<p><u>Outputs:</u> The International Team Leader is expected to achieve and demonstrate the following outputs: Advice and assistance provided on strategy and management; Management systems implemented to improve processes and decisions; TA consultants are well managed, respond to SHHIP needs and achieve contracted requirements; Leadership provided to the PMO team and consultants work closely with DOW staff building their capacity; Engineering capability increased through modelling, advice and assistance provided; Effective project management, monitoring and reporting; Achievement of annual work plan targets, SHHIP DMF milestones achieved; Capacity development in DOW; Improved systems for monitoring and acting on evidence; System developed for monitoring and evaluating processes, products and outcomes for maintaining and rehabilitating road infrastructure; Improved efficiency, effectiveness, accountability, transparency and value for money in the expenditure of SHHIP funds.</p>
	<p><u>Minimum Qualification Requirements:</u> The International Team Leader will have a background appropriate to the tasks and output set out above, with at least 5 years successful experience in a leadership role in capacity building or institutional strengthening in the transport sector and able to demonstrate how best international practice has been applied; detailed knowledge of advanced engineering and project management practices; a degree in transport engineering, civil engineering, or the equivalent from a recognized university; comprehensive knowledge of modern engineering techniques and technologies; a comprehensive understanding of good management practice in developing countries; knowledge of policies and rules of development donors and international financing institutions and experience with implementation of such projects and programs; and demonstrably skilled coach and mentor for changed behaviour.</p>
<p>Contract Management Expert (International, 37 person-months)</p>	<p><u>Purpose:</u> The Contract Management Expert will support the Program Director and the International Team Leader to ensure compliant, efficient, and effective contract management and administration through the contract life cycle.</p> <p><u>Scope:</u> The Contract Management Expert will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and will advise and assist in all contract management matters, and help to strengthen management teamwork, and will work closely with engineering supervisors, civil works contractors, DOW managers, and PMO members. S/he will apply cross-functional expertise and building capacity and performance in and through the PMO and relevant DOW provincial and HQ management team, and will guide the DOW Program Manager in ensuring that subproject operations are efficiently integrated and reported, and appropriate actions are taken.</p>

	<p><u>Responsibilities:</u> Within this overall scope, the key tasks of the Contract Management Expert will be to: (i) Advise and assist the management in all contract management matters; (ii) Work with supervision consultants and contractors to ensure full and timely contract compliance at all times; (iii) Strengthen capacity of PMO and DOW management and staff in all contract management matters, ensuring that they have a sound understanding of required systems and good practices; (iv) Lead the PMO in the contract management and administration stages including contract implementation, works supervision, monitoring and reporting, computation of payments, communications with contractors, assessing suggested contract variations; (v) Work with the management in consolidating and refining current information provision to establish a project management information system; (vi) Mentor, coach and train DOW personnel in good practice contract management as appropriate to their needs and context; and (vi) ensure that all contract performance documentation is accurate and up-to-date, and easy to use in communications with supervision consultants and contractors.</p>
	<p><u>Outputs:</u> The Contract Management Expert is expected to achieve and demonstrate the following outputs: Contract compliance; Effective integration of contract management in the PMO for efficient and cost effective works and services; Contracts for projects properly managed and administered through the contract life cycle ensuring full compliance with regulations and contract clauses and conditions; Capacity developed in the DOW on contract management systems; Any areas of non-compliance in contract management are detected and reported to management.</p>
	<p><u>Minimum Qualification Requirements:</u> The Contract Management Expert will have a background appropriate to the tasks and output set out above, with at least 10 years successful experience as international adviser in contract management in relevant international development projects; a degree in engineering, commerce, economics, business or other related fields from a recognized university; a good understanding of contract management systems and their use in procuring and managing infrastructure maintenance and civil works contracts in developing countries including demonstrated ability to manage and monitor contracted works; excellent verbal and written communication skills; and demonstrated high level skills as trainer, coach and mentor for changed behaviour.</p>
<p>Secretariat Head, Civil Works Expert (International, 34 person-months)</p>	<p><u>Purpose:</u> The Secretariat Head, Civil Works Expert will support the Program Steering Committee (PSC) with high quality and timely technical, policy, governance, procedural, legal, financial and management advice in support of the role of the PSC.</p> <p><u>Scope:</u> The Secretariat Head will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and will support the PSC in its role of (i) governance and guidance for Investment Program implementation; (ii) approval of an annual works plan for the Project Management Office</p>

	<p>(PMO); (iii) approval of appointment of staff to the PMO; (iv) monitoring of progress and review of the performance of the PMO including the technical assistance (TA); and (v) to support the policies of NTS and in particular to focus on sustainable maintenance. In support of SHHIP, s/he will provide effective and efficient managerial, planning, control, administration and other support services to the PSC and its members during and between meetings.</p>
	<p><u>Responsibilities:</u> Within this overall scope, the key tasks of the Secretariat Head, Civil Works Expert will be to: (i) Provide Secretariat services to the PSC; (ii) Receive submissions, documents and information on behalf of the PSC and ensure they meet standards, scope and timing of requirements of the PSC; (iii) Support and monitor the implementation of PSC decisions; (iv) Present verbal and written reports, information and advice on PMO progress and performance to the PSC; (v) Transmit information as received from the core management team of the SHHIP in support of SHHIP goals; (vi) Research issues at the request of the PSC and present findings in a professional manner; (vii) Assist the International Team Leader in the development, monitoring, and reporting of the annual PMO work plan; (viii) Clarify complex technical information relating to civil works so that non-technical PSC members are clear of the facts and message; and (ix) Ensure that PSC meetings are properly managed by appropriate communications with the Chair and with accurate and timely material distribution: notice of meeting, agenda, papers, and minutes of meeting.</p>
	<p><u>Outputs:</u> The Secretariat Head, Civil Works Expert is expected to achieve and demonstrate the following outputs: SHHIP implementation supported; PSC meetings conducted and recorded professionally; PSC and members are fully informed; Annual Work Plans of PMO approved; PMO staff appointments approved; PMO progress and performance monitored and reviewed.</p>
	<p><u>Minimum Qualification Requirements:</u> The Secretariat Head, Civil Works Expert will have a background appropriate to the tasks and output set out above, with successful experience in civil works in relevant international development projects, a degree in engineering, commerce, economics, business or other related fields from a recognized university, a disciplined approach to managing administrative and committee systems and records, a good understanding of planning, monitoring and reporting civil works systems in developing countries, data analysis and report writing skills, and good communication competencies.</p>
<p>Senior Road Engineer (International, 2 x 36 person- months)</p>	<p><u>Purpose:</u> The Senior Road Engineer will support the International Team Leader in SHHIP as a technical leader and engineering expert in supporting contract implementation.</p> <p><u>Scope:</u> The Senior Road Engineer will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and will have specific responsibility for the nominated OPRC subproject as well as breadth of</p>

	<p>leadership responsibility throughout the PMO. S/he is responsible for reviewing designs, developing systems, management of sub-project, and ensuring that surveys, assessments and studies are properly conducted and enacted. S/he also oversees the development of condition reports, activity records, progress reports and technical assessments, and raises capacity of managers, engineers and technical staff with the contractor and DOW.</p>
	<p><u>Responsibilities:</u> Within this overall scope, the key tasks of the Senior Road Engineer will be to: (i) Ensure project implementation complies with government and donor requirements; (ii) Prepare annual work plans that coordinate PMO activity in conjunction with contractor responsibilities and schedules; (iii) Negotiate any necessary contract variations; (iv) Monitor and report the work of contractors against appropriate indicators; (v) Monitor and report progress against work plans; (vi) Provide technical input into feasibility studies, condition surveys documenting the current infrastructure scope and condition, and assessing site conditions; (vii) Prepare detailed drawings and quantities for rehabilitation and maintenance works in accordance with current DOW design standards; <b>(viii)</b> Evaluate and review design and field engineering changes during works; (ix) Ensure work quality and adherence to specifications and approved environmental, social, safety, and quality management plans (x) Ensure that DOW officers establish and maintain contract administration documentation systems and procedures; (xi) Lead field inspections to ensure engineering designs are adequately implemented by contractors and manage design/construction issue-resolution; (xii) Mentor, coach and train DOW staff, contractor personnel and community representatives to develop competencies for contracted road and bridge design and construction as needed to their role and context; and (xiii) Lead and participate in PMO operations, providing support for outsourced road and bridge design and construction.</p>
	<p><u>Outputs:</u> The Senior Road Engineer is expected to achieve and demonstrate the following outputs: SHHIP implementation supported; Contractual compliance; Works completed on-time; Works conducted in accordance with approved environmental, social, safety, and quality management plans; Capacity of DOW staff, contractors and community representatives strengthened as appropriate.</p>
	<p><u>Minimum Qualification Requirements:</u> The Senior Roads Engineer will have a background appropriate to the tasks and output set out above, with successful experience as an international development engineer in road infrastructure projects; a degree in engineering from a recognized university; comprehensive knowledge of modern engineering techniques and technologies; a disciplined approach to overseeing civil works, data analysis and report writing skills, ability to develop competencies in others, and good communication competencies.</p>

Road Engineer (International, 36 person-months)	<p><u>Purpose:</u> The Road Engineer will support the Senior Road Engineer in SHHIP as a technical advisor and engineering expert in supporting contract implementation.</p>
	<p><u>Scope:</u> The Road Engineer will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and will have specific responsibility for the nominated OPRC subproject. S/he is responsible for review of designs, development of systems, management of allocated subproject, and ensuring that surveys, assessments and studies are properly conducted and enacted. S/he also oversees the development of condition reports, activity records, progress reports and technical assessments, and raises capacity of managers, engineers and technical staff with the contractor and DOW.</p>
	<p><u>Responsibilities:</u> Within this overall scope, the key tasks of the Road Engineer will be to: (i) Ensure project implementation complies with government and donor requirements; (ii) Prepare annual work plans that coordinate PMO activity in conjunction with contractor responsibilities and schedules; (iii) Negotiate any necessary contract variations; (iv) Monitor and report the work of contractors against appropriate indicators; (v) Monitor and report progress against work plans; (vi) Provide technical input into feasibility studies, condition surveys documenting the current infrastructure scope and condition, and assessing site conditions; (vii) Prepare detailed drawings and quantities for rehabilitation and maintenance works in accordance with current DOW design standards; <b>(viii)</b> Evaluate and review design and field engineering changes during works; (ix) Ensure work quality and adherence to specifications and approved environmental, social, safety, and quality management plans (x) Ensure that DOW officers establish and maintain contract administration documentation systems and procedures; (xi) Lead field inspections to ensure engineering designs are adequately implemented by contractors and manage design/construction issue-resolution; and (xiii) Participate in PMO operations, providing support for outsourced design and construction.</p>
	<p><u>Outputs:</u> The Road Engineer is expected to achieve and demonstrate the following outputs: SHHIP implementation supported; Contractual compliance; Works completed on-time; Works conducted in accordance with approved environmental, social, safety, and quality management plans; Capacity of DOW staff, contractors and community representatives strengthened as appropriate.</p>
	<p><u>Minimum Qualification Requirements:</u> The Roads Engineer will have a background appropriate to the tasks and output set out above, with successful experience in civil works in relevant international development projects, a degree in engineering from a recognized university, a disciplined approach to overseeing civil works, data analysis and report writing skills, ability to develop competencies in others, and good communication competencies.</p>

<p>Social Safeguards Expert 1, Land Acquisition and Resettlement (International, 34 person-months)</p>	<p><u>Purpose:</u> The Social Safeguards Expert (Land Acquisition and Resettlement) will provide leadership, implementation support and capacity building to the PMO/DOW on the Program's land acquisition activities along the Highlands Highway during its upgrading. This includes assessment and mitigation of involuntary resettlement and social impacts to ensure that affected people maintain their livelihoods, income, health and safety. Each International Social Safeguards Expert will also have designated responsibility as the safeguards contact and leader for a particular contract (one of the three PMO contracts), and will exercise this responsibility constructively where general safeguards issues are evident.</p>
	<p><u>Scope:</u> The Social Safeguards Expert will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and is expected to be involved in:</p> <ul style="list-style-type: none"> <li>• Safeguards implementation mechanisms and procedures, in accordance with the LARF, the ADB's Safeguard Policy Statement (SPS) and relevant laws of the Government of PNG, and completing the due diligence work for all Tranche 1 subprojects</li> <li>• Community consultations and disclosure of plans to affected parties</li> <li>• APs entitlements for due diligence requirements and preparation of Land Acquisition and Resettlement Plans</li> <li>• Liaise with Department of Land and Physical Planning (DLPP) and provincial authorities</li> <li>• Grievance redress mechanism and complaints</li> <li>• Coordinating with other safeguard experts working on the program (in the DOW ESSU, SC and PMO).</li> </ul>
	<p><u>Responsibilities:</u> Within this overall scope the key tasks of the Social Safeguards Expert will be to: (i) advise and assist the management in all social safeguard matters; (ii) work with supervision consultants and contractors to ensure full and timely compliance with all safeguard provisions within the Land Acquisition and Resettlement Framework (LARF); (iii) strengthen the capacity of the PMO and DOW management and staff in all social safeguard matters, ensuring they have a sound understanding of required systems and good practice; (iv) lead the PMO in implementing, monitoring and reporting on the land acquisition aspects of the safeguards program.</p> <p>Each International Social Safeguards Expert will also have designated responsibility as the safeguards contact and leader for a particular contract (one of the three PMO contracts), and will exercise this responsibility constructively where general safeguards issues are evident.</p>
	<p><u>Outputs:</u> The Social Safeguards Expert 1 is expected to deliver the following outputs: LARPs for each subproject in Tranche 1 including socioeconomic surveys and census of each affected community; detailed measurement surveys and inventories of loss; MOA or Certificates of Alienability and land titles for all purchases of customary land; a program of income restoration for physically and/or economically displaced persons; quarterly monitoring reports and semi-annual progress reports; and capacity developed in the PMO/DOW on safeguard systems.</p>



	<p><u>Minimum Qualification Requirements:</u> The Social Safeguards Expert will have an appropriate background to fulfil the tasks and outputs set out above, with at least 10 years' experience in social safeguards, resettlement or community development management in a similar international development project; post graduate degree in social science (anthropology, sociology, or a related field) from a recognized university; practical work experience in a Pacific context; familiarity with local institutions and procedures; excellent oral and written communication skills; and demonstrated training and mentoring experience.</p>
<p>Social Safeguards Expert 2, Gender and Social Development (International, 34 person-months)</p>	<p><u>Purpose:</u> The Social Safeguards Expert (Gender and Social Development) will provide implementation support and capacity building to the PMO/DOW on the Program's gender and social components of the land acquisition and resettlement program along the Highlands Highway during its upgrading. In particular, this role will provide leadership to the safeguards team and support for the implementation of the Gender Action Plan (GAP). Each International Social Safeguards Expert will also have designated responsibility as the safeguards contact and leader for a particular contract (one of the three PMO contracts), and will exercise this responsibility constructively where general safeguards issues are evident.</p> <p><u>Scope:</u> The Social Safeguards Expert will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and is expected to be involved in:</p> <ul style="list-style-type: none"> <li>• Engineering design inputs</li> <li>• Community consultations and disclosure of plans to affected parties</li> <li>• Women's work groups and market vendor groups</li> <li>• Coordinate with local service providers and NGOs for the implementation of the HIV/AIDS and gender elements</li> <li>• GAP implementation</li> <li>• Gender-related activities with the PMO, DPW, the ADB, NGOs, provincial and district authorities and other consultants.</li> </ul> <p><u>Responsibilities:</u> Within this overall scope the key tasks of the Social Safeguards Expert 2 will be to: (i) advise and assist the management in all social safeguards matters and in particular those relating to gender and social development; (ii) work with supervision consultants and contractors to ensure full and timely compliance with all safeguard provisions within the Land Acquisition and Resettlement Framework (LARF); (iii) strengthen the capacity of the PMO and DOW by providing support and training on the GAP and implementation of GAP activities for project staff at all levels; (iv) lead the PMO in implementing, monitoring and reporting on the gender and social aspects of the safeguards program.</p> <p>Each International Social Safeguards Expert will also have designated responsibility as the safeguards contact and leader for a particular contract (one of the three PMO contracts), and will exercise this responsibility constructively where general safeguards issues are evident.</p>

	<p><u>Outputs:</u> The Social Safeguards Expert 2 is expected to deliver the following outputs: contribution to the socioeconomic and census surveys of each affected community ensuring that all data is sex disaggregated and that methodologies are gender sensitive; analysis of the social impacts of land acquisition and resettlement on vulnerable people, including women and children; a work plan for social aspects of the Program; quarterly monitoring reports and semi-annual progress reports including progress in implementing the GAP; and capacity developed in PMO/DOW on gender and social interventions.</p>
	<p><u>Minimum Qualification Requirements:</u> The Social Safeguards Expert 2 (Gender and Social Development) should have a postgraduate university degree in social sciences, preferably with a gender focus. S/he should have formal training in gender analysis and gender planning, and demonstrated experience, skills and expertise in mainstreaming gender in infrastructure, especially in the Pacific. Experience in conducting primary gender research is needed, and s/he should be familiar with gender analysis tools and methodologies in the transport sector. Experience in resettlement and community development would be an advantage. S/he should have worked for international or nongovernmental organisations supporting gender and development work in a Pacific context.</p>
<p>Social Safeguards Expert 3, Community Participation (International, 34 person-months)</p>	<p><u>Purpose:</u> The Social Safeguards Expert (Community Participation) will provide leadership, implementation support and capacity building to the PMO/DOW for the Program's land acquisition activities along the Highlands Highway during its upgrading. This includes assessment and mitigation of involuntary resettlement and social impacts to ensure that affected people maintain their livelihoods, income, health and safety. Each International Social Safeguards Expert will also have designated responsibility as the safeguards contact and leader for a particular contract (one of the three PMO contracts), and will exercise this responsibility constructively where general safeguards issues are evident.</p> <p><u>Scope:</u> The Social Safeguards Expert will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and is expected to be involved in:</p> <ul style="list-style-type: none"> <li>• Safeguards implementation mechanisms and procedures, in accordance with the LARF, the ADB's Safeguard Policy Statement (SPS) and relevant laws of the Government of PNG, and the due diligence work for all Tranche 1 subprojects</li> <li>• The Community Participation Plan and community consultations and disclosure of plans to affected parties</li> <li>• APs entitlements for due diligence requirements and preparation of Land Acquisition and Resettlement Plans</li> <li>• Liaise with Department of Land and Physical Planning (DLPP) and provincial authorities</li> <li>• Establishment of grievance redress mechanism and capacity building for the Grievance Redress Committees in each province</li> <li>• Community labour based contracts</li> </ul>

	<ul style="list-style-type: none"> <li>• Internal coordinating with other safeguard experts working on the program (in the DOW ESSU, SC and PMO).</li> </ul> <p><u>Responsibilities:</u> Within this overall scope the key tasks of the Social Safeguards Expert will be to: (i) advise and assist the management in all social safeguard matters, particularly in relation to community participation; (ii) work with supervision consultants and contractors to ensure full and timely compliance with all safeguard provisions within the Land Acquisition and Resettlement Framework (LARF); (iii) strengthen the capacity of the PMO and DOW management and staff in all social safeguard matters, ensuring they have a sound understanding of required systems for good practice, particularly in relation to community involvement; (iv) and lead the PMO in implementing, monitoring and reporting on the community participation aspects of the safeguards program, with the aim of increasing community ownership.</p> <p><u>Outputs:</u> The Social Safeguards Expert 3 is expected to deliver the following outputs: LARPs for each subproject in Tranche 1 including socioeconomic surveys and census of each affected community; detailed measurement surveys and inventories of loss; a Consultation and Participation Plan; a program of income restoration for physically and/or economically displaced persons; quarterly monitoring reports and semi-annual progress reports; and capacity developed in the PMO/DOW on safeguard systems, particularly in building community relations and the use of community-based labour.</p> <p><u>Minimum Qualification Requirements:</u> The Social Safeguards Expert will have an appropriate background to fulfil the tasks and outputs set out above, with at least 10 years' experience in social safeguards, resettlement or community development management in a similar international development project; post graduate degree in social science (anthropology, sociology, or a related field) from a recognized university; practical work experience in community development in a Pacific context; familiarity with local institutions and procedures; excellent oral and written communication skills; and demonstrated training and mentoring experience. Preference will be given to persons with experience in the application of ADB Safeguard Policy Statement.</p>
<p>Environment Safeguards Expert, (International, 32 person-months)</p>	<p><u>Purpose:</u> The Environment Safeguards Expert will support the International Team Leader and build capacity in the PMO and DOW in order to ensure compliant, efficient, and effective environment safeguards planning, consultations and reporting, building capacity so that a fully compliant and proactive safeguards system is delivered at all levels.</p> <p><u>Scope:</u> The Environment Safeguards Expert will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and oversees the development of studies, reports, records, and technical assessments, and raises capacity of managers, engineers and technical staff with the contractor and DOW. S/he will have designated responsibility across all</p>

	<p>three PMO contracts, and will exercise this responsibility constructively where general safeguards issues are evident.</p>
	<p><u>Responsibilities:</u> Within this overall scope the key tasks of the Environment Safeguards Expert will be to: (i) Provide overall safeguards compliance assistance to the PMO to ensure Contractor compliance with the implementation of the Construction Environmental Management Plan (CEMP) and all other required plans in the contract; (ii) Conduct induction training for Contractor staff in the preparation of the CEMP and provide advisory support where needed to the Contractor to facilitate the preparation and submission of the CEMP, other required plans; (iii) Provide assistance to the PMO in ensuring the Contractor conducts baseline measurements as required in the EARF and as incorporated in the tender documents and resulting contract; (v) Assist the PMO and ESSU in the review and approval of the CEMP and other plans; (vi) Provide induction training to Contractor Staff in the conduct of safeguards monitoring including the preparation of monitoring tools; (vii) Ensure that the Contractor implements the monitoring tools and provide guidance in the preparation of periodic safeguards compliance monitoring reports (Monthly); (vii) Assist the PMO in the conduct of site inspections and spot-checks and issue non-compliance notices when activities do not comply with CEMP implementation; (viii) Review the submitted Contractor monitoring reports and provide feedback where necessary to ensure timely approval of the same by PMO; (ix) Assist the PMO in the timely preparation of Quarterly and Semi-annual Monitoring Reports for submission to DOW and ADB; (x) Assist the PMO in the checking and verification of Contractor claims for environmental safeguards payments; and (xi) Contribute to the preparation of the safeguards compliance section of the Project Completion Report and documenting lessons learned for subsequent improvements in environmental management planning and implementation as well as monitoring.</p>
	<p><u>Outputs:</u> The Environment Safeguards Expert is expected to achieve and demonstrate the following outputs: Environment Safeguards inputs to the Inception Report; Environmental inputs to the Tender Documents; Contractor Induction Documentation Report; Site Inspections/Spot Check Reports of CEMP compliance; Monthly Progress Report of Environment Safeguard Compliance incorporating reports of corrective actions required; Quarterly Monitoring Reports; Semi-annual Monitoring Reports to PMO for submission to DOW and ADB; and Environment Safeguards inputs to the Project Completion Report (PCR).</p>
	<p><u>Minimum Qualification Requirements:</u> The Environment Safeguards Expert will be an experienced international specialist with relevant degree in the environmental or social sciences, or in engineering. He/she should have at least 15 years of work experience in environmental management planning and implementation; international experience in conducting environmental assessments from data collection to preparation of report and through implementation of infrastructure projects particularly roads and bridges; and an excellent command of the English language, both oral</p>

	and written. Experience working in Papua New Guinea or in the Pacific area and ability to speak Tok Pidgin will be an added advantage.
Road Safety Expert (International, 32 person- months)	<u>Purpose:</u> The Road Safety Expert will support the International Team Leader in SHHIP as a technical advisor in supporting road safety engineering service within the PMO.
	<u>Scope:</u> The Road Safety Expert will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and is responsible for provision of expert technical advice regarding road safety engineering for all contracts and subprojects, building of road safety capacity of contractor and DOW staff, and documenting road safety systems for piloting in SHHIP as precursor to roll-out in DOW and sector.
	<u>Responsibilities:</u> Within this overall scope, the key tasks of the Road Safety Expert will be to: (i) Ensure subproject implementation complies with government and donor requirements for road safety; (ii) Establish road safety engineering systems and working procedures for the PMO to achieve good practice by civil works contractors; (iii) Identify accident blackspots on the SHHIP road network; (iv) Train DOW and contractor staff to design and implement low-cost remedial measures for treating hazardous locations on the road network (accident blackspots); (iv) Monitor and report the work of contractors against appropriate road safety indicators; (v) Prepare a DOW road safety policy and strategy in cooperation with the relevant key stakeholders (DOW Chief Engineer, RTA officers); (vi) Develop guidelines for a Road Design Manual and a Traffic Signs and Road Marking Manual, and oversee the implementation of the guidelines: Safe Traffic Control at Road Works (vii) Review and update sections related to road safety in the General Specifications for Road and Bridge Works; (viii) Write guidelines on road safety audit and the identification and treatment of hazardous locations, including estimation of road accident costs; <b>(ix)</b> Provide training (short courses, seminars, preparation of technical notes) to DOW staff and contractor representatives on road safety engineering; (x) Lead mainstreaming of road safety in DOW, including help with training programs and presentations to key decision makers and by identifying opportunities within DOW to enhance safety.
	<u>Outputs:</u> The Road Safety Expert is expected to achieve and demonstrate the following outputs: Planned road safety system implementation supported; Contractual compliance; Works conducted in accordance with approved road, safety plans; Documentation for road safety developed and piloted. Capacity of DOW staff and contractors strengthened as appropriate.
<u>Minimum Qualification Requirements:</u> The Road Safety Expert will have a background appropriate to the tasks and output set out above, with successful experience in road safety engineering in relevant international development projects, a degree in engineering from a recognized university, experience in technical training of staff and other forms of	

	capacity-building, a disciplined approach to documenting procedures for this context and purpose, ability to develop competencies in others, and good communication competencies.
Financial Management Expert (International, 28 person-months)	<u>Purpose:</u> The Financial Management Expert will support the International Team Leader to ensure compliant, efficient and effective use of program resources.
	<u>Scope:</u> The Financial Management Expert will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and is responsible for provision of expert technical advice and assistance regarding all financial management systems, internal controls, financial reporting and applicable capacity building measures.
	<u>Responsibilities:</u> Within this overall scope, the key tasks of the International Financial Management Expert will be to: (i) Ensure that project funds are used in a timely manner, in close cooperation with DOW; (ii) Review DOW's withdrawal application for ADB and other development partner funds managed by ADB; (iii) Review, monitor and ensure compliance with ADB conditions for disbursement, through preparation and timely submission to ADB and development partners of audited program financial statements; (iv) Work with DOW to establish an project account for PMO operating expenses; (v) Prepare and consolidate accounts and monitor disbursement requests to ADB; (vi) Lead in the development of a financial management and procurement manual for the PMO to standardize project accounting and procurement process, in close cooperation with DOW; (vii) Assist DOW in financial management and oversight of all financial management control systems and processes; (viii) Conduct continuous training of PMO-DOW staff to ensure compliance with the established financial management and procurement procedures; (ix) Ensure that financial controls established are effective, and monitor disbursements and allocations of funds from all sources; (x) Lead in the development of the annual project budget; (xi) Prepare monthly financial report for the International Team Leader and Program Director on the project account; (xii) Review payment requests, fixed assets register, and prepare funds reconciliation; (xiii) Ensure that all financial activities are in compliance with international accounting standards and conditions in the loan and grant agreements.
	<u>Outputs:</u> The Financial Management Expert is expected to achieve and demonstrate the following outputs: Compliance with ADB and Co-financier loan and grant agreements including but not limited to fund disbursement, financial reporting and audits; Any areas of non-compliance are identified, reported to management and immediately acted upon; Improvement of DOW financial management capacity through continuous trainings on international best practice on financial management and accounting systems and procedures.
	<u>Minimum Qualification Requirements:</u> The Financial Management expert should have a degree in accounting, business, finance, or equivalent in a

	<p>related field. A CPA or CFA certification is essential. At least 10 years' experience in assessing and designing financial management systems, internal controls, financial reporting and capacity building measures is essential. Public sector financial management experience and international experience are desirable. Work experience with international development organizations and knowledge of ADB or other multi-lateral development institutions' policies and practices related to financial management including disbursements and operations will also be an advantage. Previous work in PNG is desirable.</p>
<b>NATIONAL CONSULTANTS</b>	
<p>Social Safeguards Specialist (National, 6 x 44 person-months)</p>	<p><u>Purpose:</u> The Social Safeguards Specialist (National) will provide implementation support to the PMO/DOW for land acquisition activities along the Highlands Highway during its upgrading.</p> <p><u>Scope:</u> The Social Safeguards Specialist will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and will support all safeguards systems and functions and work as a member of the safeguards team. Within this scope, s/he will have specific role allocated for one of the three contracts covering a specific section of the highway.</p> <p><u>Responsibilities:</u> The key tasks of the Social Safeguards Specialist will be to: (i) assist the management and international safeguard consultants in all safeguard matters, particularly in relation to land acquisition and community participation; (ii) establish dialogue with the affected communities at each subproject site, ensuring that their concerns and suggestions are incorporated and implemented in the project, and that regulation consultations are held throughout the project cycle; (iii) work closely with the PMO/DOW safeguards team in the assessment of land and resettlement impacts, and the conduct of a socioeconomic survey, census, detailed measurement survey, and inventory of loss to establish affected people's entitlements; (iv) assist as necessary in providing required training for the enumerators and surveyors to carry out the census and survey work; (v) work with supervision consultants and contractors to ensure full and timely compliance with all safeguard provisions within the Land Acquisition and Resettlement Framework (LARF); (vi) liaise and coordinate with district and provincial land officers (DLPP), to arrange for surveys and valuations of customary land to be acquired, and processed according to government procedures; (vii) assist the safeguards team/DOW in the timely disbursement of all compensation payments for assets loss or other allowances; (viii) assist displaced or affected persons to register any complaints through the Grievance Redress Mechanism and ensure their grievance is dealt with promptly according to the correct procedures (ix) assist with the mobilization of work groups for community based labour required for construction and maintenance; and (x) prepare monthly resettlement monitoring reports for the PMO/DWO and ADB.</p> <p><u>Outputs:</u> The Social Safeguards Specialist is expected to assist in contributing to the following outputs: LARPs for each subproject in Tranche 1 including socioeconomic surveys and census of each affected</p>

	<p>community; detailed measurement surveys and inventories of loss; implementation of the Consultation and Participation Plan; a program of income restoration for physically and/or economically displaced persons; implementation of social activities to mitigate impacts; and quarterly monitoring and semi-annual progress reports.</p>
	<p><u>Minimum Qualification Requirements:</u> The Social Safeguards Specialist will have an appropriate background to fulfil the tasks and outputs set out above, with at least 5 years' experience in social safeguards, resettlement or community development management in a similar international donor supported development projects; a degree in social science (anthropology, sociology, or a related field) from a recognized university; practical work experience in community development in Papua New Guinea; familiarity with local institutions and procedures; excellent oral and written communication skills in English. Preference will be given to persons with experience in the application of ADB Safeguard Policy Statement.</p>
<p>Environment Safeguards Specialist (National, 3 x 44 person-months)</p>	<p><u>Purpose:</u> The national Environment Safeguards Specialist will generally support the environmental safeguards activities of the PMO, assisting the International Environment Safeguards Specialist in the implementation of function tasks</p> <p><u>Scope:</u> The Environment Safeguards Specialist will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and will support all safeguards systems and functions and work as a member of the safeguards team. Within this scope, s/he will work in conducting and coordinating environmental management and monitoring activities required to meet compliance requirements of the investment program.</p> <p><u>Responsibilities:</u> The key tasks of the Environment Safeguards Specialist will be, to: (i) Assist the International Environment Safeguards Expert by collecting information necessary for environmental due diligence work as required; (ii) Assist induction training of the Contractor prior to the preparation of CEMP; (iii) Assist in the review of submitted CEMP and ensure compliance with contracted safeguards requirements; (iv) Undertake due diligence of Contractor compliance with the locational requirements for construction camps and yards, quarries and materials sources; permits and licenses; health and safety and all others as provided in the CEMP and Contractor contract; (v) Prepare necessary information materials translated in the local language(s) for information dissemination and consultation related to the program's activities where required; (vi) Develop compliance checklists and conduct site visits and spot-checks of Contractors' mitigations and review Contractors' regular monitoring reports; (vii) Monitor compliance with CEMPs, and ensure compliance with environmental assurances under the program; (viii) Report monitoring results to the PMO and assist in compilation of monitoring reports and results in quarterly progress reports, and semi-annual monitoring report to be submitted to ADB; (ix) Assist in the preparation of safeguards inputs in the Project Completion Report; and (x) Perform all other safeguards activities as required.</p>



	<p><u>Outputs:</u> The Environment Safeguards Specialist is expected to assist in contributing to the following outputs: Environment Safeguards inputs to the Inception Report; Environmental inputs to the Tender Documents; Contractor Induction Documentation Report; Site Inspections/Spot Check Reports of CEMP compliance; Monthly Progress Report of Environment Safeguard Compliance incorporating reports of corrective actions required; Quarterly Monitoring Reports; Semi-annual Monitoring Reports to PMO for submission to DOW and ADB; and Environment Safeguards inputs to the Project Completion Report (PCR).</p> <p><u>Minimum Qualification Requirements:</u> The Environment Safeguards Specialist will have a degree in Environmental Science or related courses in the biological or social sciences with at least five (5) years of work experience in the fields of environmental or social assessment, baseline data gathering, community consultations, environmental monitoring and report preparation. The appointee is expected to have good understanding of the PNG country systems and ADB SPS 2009, as well as excellent oral communication and writing skills, knowledge of environmental issues, and willing to be stationed in the Highlands to work with a diverse team of Consultants and the community. Experience working with multilateral or bilateral development agencies will be an advantage.</p>
Accountant (National, 44 person-months)	<p><u>Purpose:</u> The national Program Accountant will work under the immediate supervision of the International Financial Management Expert and the overall supervision of the team leader in carrying out finance and accounting procedures.</p> <p><u>Scope:</u> The Accountant will be stationed in the PMO Office in Goroka, will visit the highlands as needed, and will assist in carrying out the activities and achieving the outputs for the International Financial Management Expert to ensure the compliant, efficient and effective use of program resources.</p> <p><u>Responsibilities:</u> The key tasks of the Accountant will be, to: (i) Perform daily functions including recording all cash, check and bank transfer transactions; (ii) Maintain cash and bank ledgers accounts receivable, accounts payable and fixed asset register; (iii) Prepare weekly and monthly reconciliation of program funds; (iv) Assist in the preparation of budgets and period financial reports; (v) Check invoices to ensure they have all the relevant information and correctly coded in the DOW chart of accounts; (vi) Assist in the preparation and reviewing of expense reports, bank reconciliations, petty cash reports, petty cash vouchers.</p> <p><u>Outputs:</u> The Accountant (National) is expected to assist in contributing to the following outputs: Compliance with ADB and Co-financier loan and grant agreements; Accounts transactions accurately recorded; Funds, invoices, and reports accurate, up-to-date, and properly reconciled.</p>

	<p><u>Minimum Qualification Requirements:</u> The Program Accountant should be a Certified Public Accountant (CPA) with minimum 3 years' experience in project accounting, financial reporting, cash management, bank reconciliations and accounts payable. Previous experience working on projects financed by international donors and automated budgeting and accounting systems is desirable. High level competency in giving attention to detail and accuracy, and proficiency in MS Office applications are essential.</p>
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**95. Funding for PMO.**

96. In addition to implementation support and capacity building technical assistance costs, the PMO will incur operating costs to cover the following items: office building construction, maintenance, security, office supplies and consumable; vehicle acquisition, operation, maintenance, insurance and drivers; phone, internet, and security radio communications; domestic air transport; lodging and per diem allowances; and basic health and first aid services. These operating costs relate to DOW staff as well as to national and international consultants. The recurrent base costs are about \$120,000 per month, \$1,440,000 per year and \$5,760,000 for T1. The first year investment cost is about \$3,500,000 for the building and the vehicles. The total operating base costs are \$9,241,440.

97. In conclusion, the cost of the Tranche 1 institutional strengthening is estimated at \$14,111,600 and the operating cost \$9,241,440 bringing the total base cost of running the PMO at \$23,353,040 or about 8% of the cost of the total SHHIP operation.

## **VII. SAFEGUARDS**

98. Staffing. Evolving from the earlier environmental management unit, DOW has now established an ESSU. The ESSU is responsible for implementing safeguards on behalf of DOW for all programs and projects (development partner financed and internally financed) throughout the country. The ESSU has evolved and grown from a smaller environmental management unit and currently comprises seven positions, although only four (4) of these positions are currently filled. Three of these are permanently appointed while the other is awaiting confirmation. The Senior Environment Officer previously doubled as Acting Manager while at the same time monitoring World Bank-funded projects, and the Environment Officer (now a Senior Socio-economic and Safeguards Officer) is doubling as social safeguards officer monitoring ADB-funded projects. A Manager has recently been appointed to head the ESSU and a new inexperienced staff has been recruited, both of which have still to be familiarized with the safeguards requirements of both the WB and the ADB. Three other positions therefore need to be filled permanently. This present staffing compliment is assisted by an International Safeguards Specialist and a national Safeguard Specialist which are project-based in Mt Hagen. The International Safeguards Specialist has of late been devoting more time on the safeguards compliance requirements of the Highlands Region Road Investment Improvement Program (HRRIP). Both ADB and WB have provided project-based resources to support ESSU, but additional and ongoing support is required. A capacity building program will be delivered to the ESSU through funds from the existing ADB-funded HRRIP which will benefit the SHHIP eventually. Two short-term international specialists (one environmental and one social) are being recruited to build skills in the unit, A DOW environmental safeguards officer assisted by one international and three national environmental safeguards consultants will be deployed to the PMO in Goroka to perform the environmental responsibility of the SHHIP on-site. They will

oversee the work of the Supervising Engineers and the contractor's operations with regard to the elaboration and implementation of the environmental management plan and overall compliance with the environmental safeguards requirements..

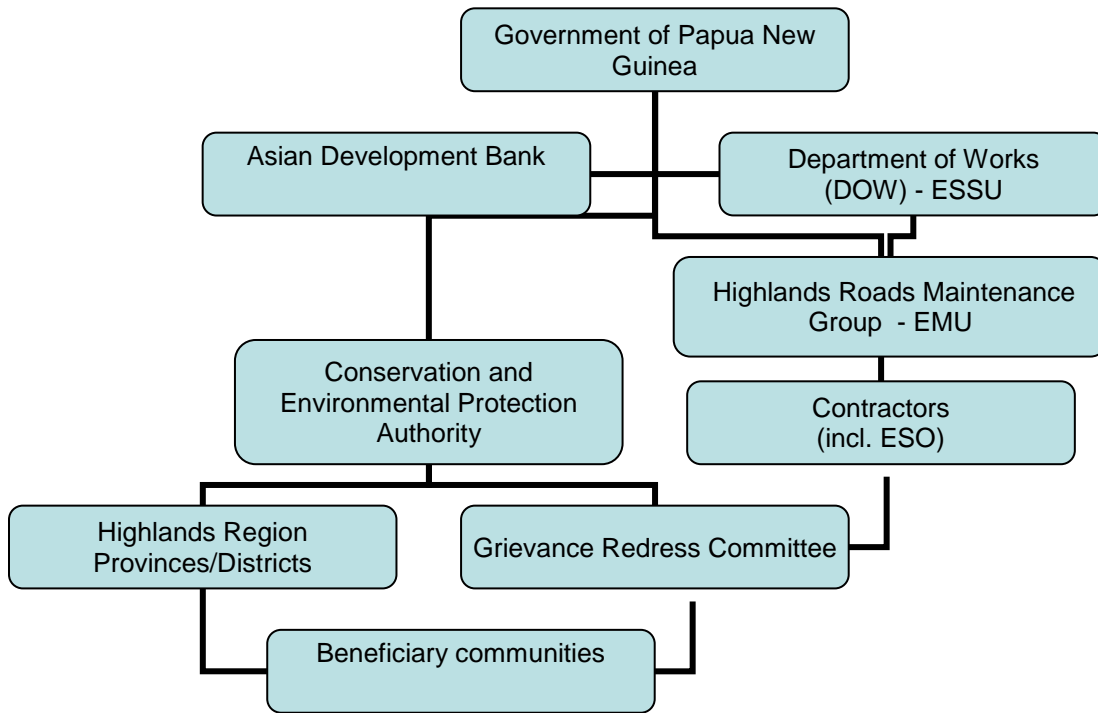
## **A. Environment**

99. Tranche 1 has been classified as category B for environment following the ADB's SPS (2009). Following the requirements of the SPS, the overall Investment Program's Environmental Assessment and Review Framework (EARF) and PNG's Environment Act, and tranche associated environmental assessments, the initial environmental examination (IEE) for the proposed works have been prepared. The IEE found that there will be no major long term adverse impacts on the environment due to the proposed activities. Short-term construction phase impacts will be managed and mitigated through implementation of the environmental management plan (EMP) included in the IEE. The EMPs for each works contract will be incorporated into the design and implementation of the works. The EMP will guide the PMO, supervision consultants, and contractors in managing, monitoring, and reporting environmental impact mitigations and compliance. Civil works will not commence until (i) the contractor has received induction training on environmental management delivered by the PMO or supervision consultant, and the construction EMP (CEMP) has been submitted for review and clearance; (ii) the CEMP has been reviewed and cleared by the PMO and supervision consultant; and (iii) environment permits as required have been obtained from the Conservation and Environmental Protection Authority (CEPA). Once the contractor has identified the sources of materials to be used for the works, land/resource owner consultations and agreements, an environmental assessment, extraction plan, and permit applications will need to be prepared and submitted to the PMO and CEPA.

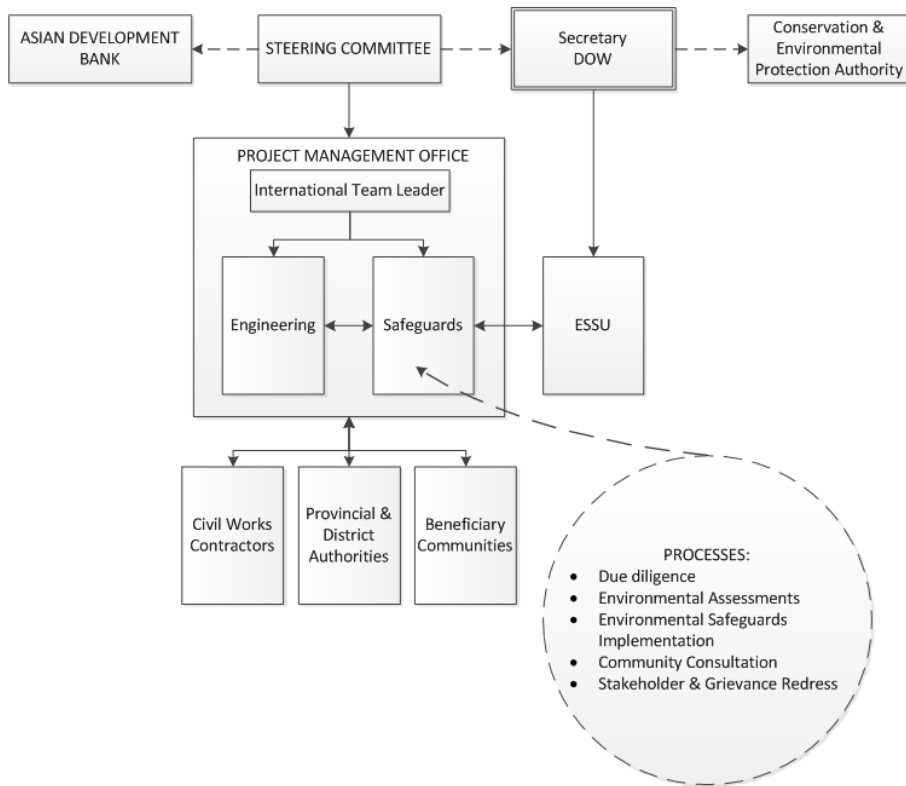
100. During project implementation the environmental management capacity of the DOW and PMO will be further strengthened in accordance with best practice and to ensure compliance with government and ADB safeguards requirements. The PMO will include one national environmental officer, one international and three national environmental specialists. The consultants will assist in implementing the safeguards activities of SHHIP and provide capacity building training and other assistance to PMO and other participants in the SHHIP where needed related to environmental management. The consultants will be (i) specialists and/or specialized in environmental sciences, (ii) experienced in environmental assessment, EMP preparation and implementation, (iii) understand requirements for and delivery of monitoring and reporting, and (iv) experienced in capacity building and training in environmental safeguards. For the international environment specialist, experience in application of environmental safeguards in PNG will be considered an advantage. In accordance with ADB requirements for consultant recruitment, DOW, as executing agency for the project, will require each Supervising Engineer to engage an environment specialist with relevant qualifications and experience to verify that the contractor's operations comply with the EMP and the safeguards requirements.. The contractor will be required to include an environmental and safety officer (ESO) on their team.

101. Figure 1 outlines the existing structure with the current ESSU, while Figure 2 outlines environmental safeguards works and authority process as proposed under the Investment Program.

### **Figure 1: Existing ESSU**



**ENVIRONMENTAL SAFEGUARDS WORK AND PROCESS AUTHORITY**



## **B. Involuntary Resettlement and Indigenous Peoples**

102. Based on the preliminary survey and design of the Investment Program, it is not expected that there will be any significant involuntary resettlement under any of the three tranches of SHHIP. Although Tranche 2 and 3 are likely to involve some degree of land and resettlement impacts, it is not anticipated, that there will be any involuntary resettlement impacts, in Tranche 1, as the initial civil works will take place within the existing 40m wide road corridor. Most work undertaken in Tranche 1 will involve only maintenance and upgrading works executed within the existing highway cross section, and the alignment and longitudinal profile of the road will be maintained, so this is not likely to have significant impacts on local roadside communities.

103. The project will comply with both ADB safeguard requirements and PNG laws and regulations applicable to land acquisition and resettlement. To ensure that acquisition of customary land and resettlement activities are carried out properly, DOW will follow the measures included in the overall Investment Program's Land Acquisition and Resettlement Framework (LARF) and the Tranche 1 due diligence including: entitlement and compensation policies, assessment of impacts and preparation/update of due diligence reports, consultation, disclosure and grievance redress, capacity building and support, and monitoring and reporting.

104. Based on the lessons from HRRIP, DOW will adopt the following measures for SHHIP when land acquisition and involuntary resettlement is required: (i) LARPs with signed MOAs and updated compensation rates, are prepared and implemented prior to the commencement of civil works; and (ii) additional safeguard capacity is available under the PMO.

105. As Executing Agency (EA) for the Program, DOW has overall responsibility to manage the planning, implementation and monitoring related to acquiring use rights for additional land to implement subprojects along the highway, as well as compensation for damages on project-affected land. DOW has a Survey and Land Branch, as well as an Environment and Social Safeguards Unit (ESSU) based in Moresby, who may assist with land issues, but for the day-to-day SHHIP operations, DOW will establish a PMO in Goroka including a team of safeguards specialists. Monitoring reports and semi-annual reports will be submitted to the DOW and ADB by the PMO.

106. An Indigenous Peoples Planning Framework (IPPF) has been prepared for the Investment Program. Tranche 1 is classified as category C on indigenous peoples in accordance with ADB's SPS (2009). DOW shall ensure that works financed under the Tranche 1 do not have any adverse impacts on or target any distinct or vulnerable ethnic or tribal group. All works will be implemented in a culturally appropriate and participatory manner. In the event that project(s) do have any such impacts, DOW shall take all steps required to ensure that the project complies with the applicable laws and regulations of Papua New Guinea and the ADB's SPS (2009).

### **Safeguards in the Project Management Office**

107. The PMO in Goroka will have the responsibility (delegated by the DOW) to carry out all operations and deliverables. The small team of qualified safeguards staff, (national and international) with skills in environment, land acquisition / resettlement, community development, and gender will carry out and coordinate the consultations, screening, surveys, census and other fieldwork for additional land requirements, as well as the tasks of monitoring and reporting on progress. They will also brief and liaise closely with, safeguards staff from the Design and Supervision Consultant.

### **Design and Supervision Consultant**

108. The DSC will also employ national and international safeguard specialists to supervise the compliance of the contractors' operations in terms of safeguards requirements in their contracts. This includes compliance with the Environmental Management Plan (prepared by the contractor, and reviewed and validated by the DSC safeguards experts), and compliance with the LARF/LARP which is prepared by the PMO safeguards staff, who are responsible for ensuring it is compliant with PNG national and ADB's safeguard requirements. During the pre-construction phase, the DSC will ensure that social issues that need to be addressed by the design engineers are considered. Following award of the contract, the DSC safeguards specialists will provide social safeguards induction for the contractor (if required). They should ensure that the contractor has access to the social assessments of the subprojects, and advise them of their responsibilities to mitigate social impacts. DSC safeguards compliance specialist will also prepare regular site visit and compliance checks and contribute to quarterly progress and bi-annual monitoring reports.

### **Provincial Administrations and DLPP**

109. The Provincial Land Officer (PLO) of DLPP will collaborate with the PMO to negotiate MOA for use of land for the road corridor, or to facilitate the acquisition of additional land where needed. In some cases he may delegate responsibility to the relevant District Land Officers (DLO). The PLO/DLO responsibilities include:

- Attending community consultations. Arranging for surveys of land required permanently or temporarily for the subproject, identification of owners, and producing LIRs and valuation reports;
- In coordination with the PMO safeguards team, negotiating and signing a Memorandum of Agreement for permanent use of customary land with the leaders and affected landowners in communities;
- Negotiating and signing leases for temporary use of land required for the subprojects (in collaboration with contractors);
- Preparation of land documents for submission to the Department of Provincial and Local Government Affairs, to obtain Certificates of Alienability where required, and follow-up for the land deeds and transfer of title; and
- Consulting with and advising affected communities about the Program, the policies and procedures when additional land is required and the rights and responsibilities of affected people and other stakeholders.
- The Provincial Governor and/or Provincial Administrator (PA) in coordination with DOW and DLPP are responsible to ensure that funds are allocated and disbursed to pay compensation and allowances that are included in the Program.

### **District and LLG Administrations**

110. LLG and Ward Councilors will be participants in all consultations with local communities, affected people and other stakeholders. They will be responsible for collaborating with the PMO to organize and carry out these consultations..

## **C. Timeline for Major Safeguards Activities**

111. A matrix showing the major safeguards activities and the timing for each activity during project preparation and implementation before civil works is included in Appendix 3. The matrix is intended to help DOW efficiently prioritize safeguards resources.

#### **D. Gender and Social Dimensions**

112. **Gender.** DOW will ensure that the project is designed to include gender friendly infrastructure incorporating road safety features including footpaths, road shoulders, public motor vehicle stops at markets, and guard rails to ensure safety of women and children. Road safety education programs for adults and children will be developed through a Community Road Safety Program to address safety issues associated with school children, and personal safety concerns of women and young children. Engineering designs will also take account of the washing and bathing sites used by women along the highway and at river crossings, by providing suitably designed infrastructure. Roadside markets and lay-bys will be provided with hygienic public toilets and water standpipes. The project will also address the issues of rubbish disposal at markets, where waste is currently encroaching on the road corridor. DOW will ensure that ADB's Policy on Gender and Development (1998) is followed during implementation of the Project; and (b) encourage local contractors to employ women in road improvement and maintenance (target of 20%). The road safety program and HIV/STIs awareness and prevention will ensure that both men and women participate in awareness training. The project will ensure that existing health service providers and NGOs working in the Program areas, are involved in the HIV/AIDS program for on-going sustainability of the work, and to reach key target populations, such as sex workers and truck drivers. Such programs will also include issues around the prevention of gender-based violence.

113. **Consultation and participation.** One of the social safeguards specialists in the PMO, will have specific responsibility for community participation and management of community relations, who will establish a consultation and participation plan for each tranche and specific works along the Project Road as necessary. The purpose of the consultation program is to (i) inform communities about the Investment Program and the works to rehabilitate and maintain the road; (ii) provide information about the expected benefits, potential adverse impacts, and measures to manage such impacts through compensation, environmental management, and community based initiatives; and (iii) provide a forum for communities to participate in the project by expressing their interests, preferences, and concerns about subprojects. The supervision consultants will assist in the preparation of a Consultation and Participation Plan to guide the Investment Program.

114. **Sexually transmitted infections.** PNG is characterized by a generalized HIV epidemic, concentrated, in the Highlands, with national prevalence rates of 0.8% among 15–49 year olds. Awareness about the risk of exposure and prevention measures is slowly increasing. In 2013, 40.9% of women and men aged 15–24 years correctly identified ways of preventing the sexual transmission of HIV and rejected major misconceptions about HIV transmission.<sup>15</sup> In the Highlands Region friends, relatives and health workers are the leading sources of information about sexually transmitted infections (STI). There is a risk of STI transmission with improved access, increased road traffic and greater connectivity. Risk mitigation measures to be adopted under the Project include (i) specific assurances to ensure STI awareness and prevention programs are implemented by specialist health and non-government organisations hired by road contractors; and (ii) community-based STI awareness and prevention training along project roads.

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<sup>15</sup> UNAIDS. 2014. Interim Global AIDS Response Progress & Universal Access Reports: Papua New Guinea. Reporting Period January 2013 – December 2013. Port Moresby.

The awareness and prevention programs will be delivered by suitably qualified health service providers, in collaboration with the provincial AIDS and provincial health administrations. PMO and the contractor(s) will ensure that construction workers participate in the STI/HIV/AIDS and gender awareness training provided by the NGO. Participation and training records will be the subject of monitoring and reporting.

115. **Effective Gender Mainstreaming.** Tranche 1 has been designed to support effective gender mainstreaming. The Gender Action Plan (GAP) is presented below.

Outputs and Activities	Proposed Gender Mainstreaming Activities (Target)	Primary Responsibility
<b>Output 1:</b> The 430 kilometer (km) two-lane rural Highlands Highway from Lae Nadzab airport to Kagamuga airport in Mt Hagen, is restored, effectively maintained, and upgraded to be safe, climate-resilient and disaster resistant		
<p><b>Activities:</b></p> <p>1(a) About 93 km of roads rehabilitated to good condition with IRI reduced from &gt; 9 to &lt; 4.5</p> <p>1(b) About 350 km of roads are upgraded (widening, overtaking/climbing lanes, strengthening, drainage improvements)</p> <p>1(c) Highway road length - annual distance maintained increased (from 50% to 100%)</p> <p>1(d) 14 bridges widened, 18 reinforced, and 28 reconstructed to 2 lanes for safe access by all users</p>	<ul style="list-style-type: none"> <li>• Ensure at least 40% female participation in public/community consultation for project design and implementation, which are conducted in vernacular languages, and include holding separate consultations with females to ensure their views are fully expressed</li> <li>• Ensure bridge design incorporates measures to enhance road safety, including pedestrian access with guard-rails, footpaths, and safe access on bridge approaches including lighting where it may be technically feasible</li> <li>• Provide adequate bus bays for public motor vehicles, and install bus shelters and sex segregated public toilets/latrines with a water supply near all bus stops, lay-bys and truck stops including lighting where it may be technically feasible</li> <li>• Improve ten main roadside market areas with sealed surfaces, segregated male/female toilets, a water supply, and adequate drainage (2023: 5 markets completed). Establish vendors' associations to manage markets, and toilets (with at least 70% women members)</li> <li>• At selected river crossings and roadside water points used for washing, install concrete steps with rail, and washing slabs at water level near base of bridges, and at laundry areas off the road, where it is safe and appropriate to install.</li> <li>• Ensure all GRCs have females representation (Target: At least two members by 2018)</li> <li>• If land is acquired for subprojects, ensure that affected females are compensated (for usage rights and loss of crops or assets) at the same rate as affected males, paid directly to them, and provided with adequate arrangements to restore / maintain livelihoods.</li> <li>• Form community-based road construction and maintenance groups and provide training in basic skills, working tools, and protective clothing (Target: 20% women; Indicator: no. of person days worked by women in construction or routine road maintenance activities).</li> </ul>	<p>SU/PMO gender specialist</p> <p>PMO, design engineers &amp; contractors</p> <p>Design engineers, contractors &amp; WASH specialists</p> <p>Design engineers, PMO</p> <p>SU (PMO) PMO SU and DLPP</p> <p>SU (PMO), community relations officers, and contractors</p> <p>SU (PMO) and contractors</p>



	<p>Include local employment provisions in bidding documents</p> <ul style="list-style-type: none"> <li>• Ensure equal pay for equal work between male and female workers, and ensure payment for women is given directly to them (monitored through contractors' payrolls).</li> <li>• Provide training in HIV/AIDS, STIs, and prevention of gender violence for all construction workers and roadside community members, using existing local providers in the area – NGOs and NDoH staff (Target: 50% women participants and by 2027 95% of roadside population are aware of HIV/AIDS and STI risks - Baseline: 87%)</li> </ul>	NGOs & health centre staff with appropriate expertise (working long-term in local area)
<b>Output 2:</b> Road safety increased and sustained for pedestrians and vehicle passengers on the Highlands Highway		
<p><b>Activities:</b></p> <p>2(a) Conduct community road safety awareness campaigns</p> <p>2(b) Road safety measures incorporated in detailed project design and bid documents</p>	<ul style="list-style-type: none"> <li>• Road safety programs at the community level target women/girls and involve women's associations (Target 2020: 30% of school children and adults living along the highway receive road safety education and 50% of participants are female; Target 2027: 80% of school children and 50% of roadside communities living along the highway receive safety education – 50% female)</li> <li>• Ensure that road safety measures include provisions aimed at women, children, disabled and elderly (pedestrian crossings and footpaths at schools, markets and residential areas, and gender inclusive signage)</li> </ul>	Social/gender specialist and road safety specialist (PMO)
<b>Output 3:</b> Transport logistics and services improved in the Highlands region by strengthening the value chain for domestic and international trade		
<p><b>Activities:</b></p> <p>3(a) Two freight logistics platforms constructed in Mt Hagen/Jiwaka and Goroka</p>	<ul style="list-style-type: none"> <li>• Ensure enhanced road-related economic opportunities for women through involvement in fresh produce marketing along the highway (Target 2023: 50% of farmers participating in fresh produce marketing through logistics platforms are women)</li> </ul>	Fresh Produce Devt Agency  SU (PMO) – gender specialist
<b>Output 4:</b> Program management and institutional capacity improved to deliver the program and sustain its benefits		
<p><b>Activities:</b></p> <p>4(a) PMO established with qualified technical and managerial staff</p> <p>4(b) Financial execution of annual work program increased</p> <p>4(c) HH Steering Committee and Core Working Group operating, supported by functioning Secretariat</p>	<ul style="list-style-type: none"> <li>• Recruit International and national social and gender specialists to Safeguards Unit (SU) of PMO to support and monitor GAP implementation, train PMO staff, and assist community consultations and training in line with GoPNG GESI policy</li> <li>• GAP and GESI policy orientation for DOW and key EA/IA staff, and gender sensitivity training for staff of project related agencies and implementers (minimum of 50% male participants)</li> <li>• Collect sex-disaggregated data for the baseline socio-economic studies and relevant performance indicators, to inform regular progress and evaluation reports on program impacts and GAP benefits</li> </ul>	ADB, PMO & DOW  SU (PMO) – international gender expert  SU - international safeguards & gender specialists
<b>IMPLEMENTATION ARRANGEMENTS</b>		

The GAP will be implemented by the PMO/DOW who will employ social safeguards specialists overseeing execution and compliance of all social and gender dimensions, and safeguards. At least three safeguard positions will be required: one full-time national safeguards specialist for the duration of project implementation, supervised by one international social safeguards specialist and one gender specialist working intermittently. The specialists will be responsible for incorporating the GAP into project planning and implementation programs, including awareness training and establishment of sex-disaggregated indicators for project performance and monitoring. Progress of GAP activities will be included in regular progress reports on overall project activities submitted to DOW, ADB, and the Government of Papua New Guinea

## VIII. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

### A. Design and Monitoring Framework

#### 1. For the Investment Program

<b>Impacts the Investment Program is Aligned with</b>			
Increased opportunity for equality and prosperity in rural areas (Development Strategic Plan, 2010–2030) <sup>a</sup>			
Attainment of well-integrated, safe, affordable, and financially and environmentally sustainable transport systems that efficiently serve the economy and people of PNG (National Transport Strategy, 2014–2030) <sup>b</sup>			
Improved access to health and education, and living standards of the people of PNG (National Strategy for Responsible Sustainable Development for Papua New Guinea) <sup>c</sup>			
<b>Results Chain</b>	<b>Performance Indicators with Targets and Baselines</b>	<b>Data Sources and Reporting Mechanisms</b>	<b>Risks</b>
<b>Outcome</b> Increased efficiency and safe movement of people, goods, and services between the Highlands Region and markets	By 2028 a. Travel time from Lae Nadzab airport to Kagamuga airport reduced by 30% (2015 baseline: 10 hours) b. Annual number of road closures greater than 48 hours due to climate events reduced to 2.0 (2016 baseline: 5.0 closures) c. At least 50% of highlands highways improved to 3-star safety rating or better for both vehicle occupants and pedestrians: (2015 baseline: 4% for vehicle occupants and 2% for pedestrians) d. Road fatalities in project highway reduced by 50% (2016 average baseline: 0.38 fatalities per km) e. At least 50% of farmers participating in fresh produce production and marketing through the transport logistics platforms are women (2016 baseline: 0%)	a. DOW annual reports b. DOW annual reports c. DOW iRAP reports (supported by TSSP) d. NRSC annual reports where data is disaggregated by sex and age e. ADB review missions, NARI progress reports that include participation rates, and agribusiness consultant reports	Safety and security situation deteriorates in the project area Macroeconomic factors affect commodity prices and hinder development Insufficient road maintenance financing may jeopardize the sustainability of the large investment in the Highlands Highway, its preservation as an asset.
<b>Outputs</b> 1. 430 km of the two-lane national Highlands Highway from Lae Nadzab airport to Kagamuga airport rehabilitated, upgraded, and	By 2027 1a. The 57 km-long crossing of Chimbu province entirely rehabilitated and upgraded to good condition and adapted to climate change with IRI < 4.5 (2016 baseline: 0 km in good condition and IRI ≥ 9) 1b. 373 km of highway and 68 bridges are restored, upgraded to good condition, and adapted to	1a–h. Project M&E field reports and annual program progress reports, ADB review missions, and engineer-certified contractor handover certifications	Implementation delays due to procurement

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
<p>effectively maintained</p> <p>2. Road safety on the national Highlands Highway increased</p> <p>3. Transport logistics and services in the</p>	<p>climate change with IRI &lt; 4.5; (2016 baseline: 0 km and 0 bridges restored and upgraded, IRI ≥ 9)</p> <p>1c. 60 bus stops and bus shelters built (2016 baseline: 0)</p> <p>1d. 24 roadside market areas upgraded with separate male and female toilets (2016 baseline: 0)</p> <p>1e. \$10 million allocated and disbursed for the 430 km highway length annually for maintenance (2016 baseline: \$0)</p> <p>1f. 20% of employed construction and community-based maintenance workers are women (2016 baseline: 0%)</p> <p>1g. Goroka road bypass (24 km long) designed for climate change adaptation and constructed (2016 baseline: no road bypass)</p> <p>1h. 20 km of truck climbing lanes constructed in the Kassam Pass and the Daulo Pass along sections where the slope gradient is steeper than 10% (2016 baseline: no truck climbing lane)</p> <p>By 2027</p> <p>2a. 10 km of footpaths constructed at 10 school locations (2016 baseline: 0 km)</p> <p>2b. At least 10,000 residents in seven provincial districts along the Highlands Highway with increased awareness on community road safety, of whom 50% are women (2016 baseline: 0 residents)</p> <p>2c. Horizontal marking, signage, and crash barriers installed in 24 hazardous locations (2016 baseline: no installations)</p> <p>By 2027</p> <p>3. Two trade and freight logistics platforms constructed (in Goroka and</p>	<p>2a–c. ADB review missions and RTA reports</p> <p>3. ADB review missions, NARI progress reports that include participation</p>	<p>Road safety furniture and signage is stolen during or after implementation.</p>

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Highlands Region improved	Mt. Hagen) (2016 baseline: 0 platforms)	rates, and agribusiness consultant reports	
4. Institutional capacity of the DOW to deliver the investment program and sustain its benefits strengthened	By 2027 4a. New functional PMO office constructed in Goroka (2016 baseline: no office)  4b. Institutional development plan for the DOW implemented, training 40 staff in financial management and procurement (2016 baseline: 0 staff trained)  4c. The DOW received funding for climate change adaptation (2016 baseline: no climate change funding)	4a–c. ADB review missions and program progress reports	

### Key Activities with Milestones

#### 1. Highlands Highway from Lae Nadzab airport to Kagamuga airport at Mt. Hagen rehabilitated, upgraded, and effectively maintained

1.1 Award, review, and validate design and road safety studies, environmental management plan, and any required involuntary resettlement plan (December 2017)

1.2 Award and mobilize construction supervision consultants (December 2017)

1.3 Award civil works contracts (December 2017)

#### 2. Road safety on the Highlands Highway increased and sustained for pedestrians and vehicle passengers

2.1 Prepare road safety action plan (April 2018)

2.2 Launch road safety awareness programs (May 2018)

2.3 Ensure identified road safety improvement needs are included in road design and bid documents (March 2017)

#### 3. Transport logistics and services in the Highlands Region improved to strengthen the agricultural value chain for domestic and international trade

3.1 Award, review, and validate logistics platforms design studies (December 2023)

3.2 Award logistics platforms construction and supervision contracts (April 2024)

3.3 Examine feasibility and potentially support setting up private operation of logistics platforms (December 2025)

#### 4. Institutional capacity to deliver the investment program and sustain its benefits strengthened

4.1 Strengthen DOW-HRMG to attain annual and program implementation targets (December 2017)

4.2 Conduct capacity-building activities for procurement, safeguards, and overall road safety; and monitor compliance (December 2017)

4.3 Install, adequately staff, and make operational two weighbridge stations in Goroka and Hagen; and approve, establish, and implement operating procedures in Goroka, Mt. Hagen, and Lae (December 2025)

### Inputs

ADB OCR: \$680 million (\$610 million regular loan and \$70 million concessional loan)

Government: \$148.5 million

Other Cofinanciers: \$186.5 million (loan/grant)

ADB = Asian Development Bank, DOW = Department of Works, HRMG = Highlands Road Maintenance Group, iRAP = International Road Assessment Program, IRI = international roughness index, km = kilometer, M&E = monitoring and evaluation, NARI = National Agricultural Research Institute, OCR = ordinary capital resources, PMO = project management office, PNG = Papua New Guinea, RTA = Road Traffic Authority, TSSP = Transport Sector Support Program.

<sup>a</sup> Government of PNG, Department of National Planning and Monitoring. 2010. *Papua New Guinea Development Strategic Plan, 2010–2030*. Port Moresby.

<sup>b</sup> Government of PNG, Department of Transport. *National Transport Strategy: Volume 3, Detailed Strategy*. Port Moresby.

<sup>c</sup> Government of PNG, Department of National Planning and Monitoring. 2014. *National Strategy for Responsible Sustainable Development for Papua New Guinea: StaRS*. 2nd ed. Port Moresby.

Source: Asian Development Bank

## 2. For Tranche 1

<b>Impacts Tranche 1 is Aligned with</b>			
<p>Opportunity for equality and prosperity in rural areas increased (Development Strategic Plan, 2010)<sup>a</sup></p> <p>Well integrated, safe, affordable, financially and environmentally sustainable transport systems that efficiently serve the economy and people of PNG attained (National Transport Strategy, 2014)<sup>b</sup></p> <p>Access to health, education and living standards of the people of PNG improved by 2026 (National Strategy for Responsible Sustainable Development for Papua New Guinea, 2014)<sup>c</sup></p>			
<b>Results Chain</b>	<b>Performance Indicators with Targets and Baselines</b>	<b>Data Sources and Reporting</b>	<b>Risks</b>
<p><b>Program Outcome</b> Efficient and safe movement of people, goods and services between the Highlands region and markets</p>	<p>By 2021</p> <p>a. Travel time from the Nadzab airport to Kagamuga airport reduced by 15% [2015 baseline: 10 hours]</p> <p>b. Annual number of road closures greater than 48 hours due to climate events reduced to 2.5 [2016 baseline: 5 closures]</p> <p>c. At least 10% of Highlands Highway improved to 3 stars safety rating or better for both vehicle occupants and pedestrians: [2015 baseline 4% and 2% 3 star ratings, respectively].</p> <p>d. Road fatalities reduced by 25% for project highway [2016 annual average baseline: 0.38 fatalities per km]</p>	<p>a. DOW annual reports</p> <p>b. DOW annual reports</p> <p>c. DOW iRAP reports (supported by TSSP)</p> <p>d. NRSC annual reports wherein data is disaggregated by sex and age</p>	<p>Safety and security situation deteriorates in the project area</p> <p>Macroeconomic factors affect commodity prices and hinder development</p> <p>Insufficient road maintenance financing may jeopardize the sustainability of the large investment in the Highlands Highway, its preservation as an asset.</p>
<p><b>Tranche 1 Outputs</b> 1. 170 km of two-lane National Highlands Highway from Lae Nadzab airport to Kagamuga airport is rehabilitated, upgraded, and about 430 km of the</p>	<p>By 2021</p> <p>1a. The 57 km long crossing of Chimbu Province entirely rehabilitated and upgraded to good condition and adapted to climate change with IRI &lt; 4.5 [2016 baseline: 0 km in good condition and IRI ≥ 9]</p>	<p>1a – 1f. Project M&amp;E field reports and annual program progress reports, ADB review missions, and engineer certified</p>	<p>Implementation delays due to procurement</p>

Highlands Highway effectively maintained	<p>1b. 115 km of highway rehabilitated, upgraded to good condition, and adapted to climate change with IRI &lt; 4.5; [2016 baseline: 0 km restored and upgraded and IRI ≥ 9]</p> <p>1c. 10 bus stops and bus shelters built; [2016 baseline: 0 bus stops and bus shelters]</p> <p>1d. 5 roadside market areas upgraded with separate male &amp; female toilets; [2016 baseline: 0 roadside markets upgraded with separate male and female toilets]</p> <p>1e. \$10 million is allocated and disbursed on the 430 km of highway length annually for maintenance [2016 baseline: \$0 million]</p> <p>1f. 20% of employed construction and community based maintenance workers are women [2016 baseline: 0%]</p>	contractor handover certifications	
2. Road safety on the national Highlands Highway increased	<p>By 2021</p> <p>2a. 10 km of footpaths constructed at 10 school locations [2016 baseline: 0]</p> <p>2b. At least 5,000 residents in 7 provincial districts along the Highlands Highway with increased awareness on community road safety, of which 50% are women [2016 baseline: 0 residents]</p> <p>2c. In 10 hazardous locations; horizontal marking, signage, and crash barriers installed [2016 baseline: 0]</p>	2a-2c. ADB review missions and NRSC reports	Road safety furniture and signage is stolen during or after implementation.
3. Institutional capacity of DOW strengthened	<p>By 2020</p> <p>3a. New functional PMO office constructed in Goroka [2016 Baseline: 0 PMO office in Goroka]</p>	3a.-3b. ADB review missions and program progress reports	

	3b. Institutional development plan for DOW implemented, training 40 staff in financial management and procurement [2016 Baseline: 0 staff trained]		
<p><b>Key Activities with Milestones</b></p> <p><b>1. Output 1: 40% of the National Highlands Highway from Lae Nadzab airport to Kagamuga airport at Mt. Hagen, is restored, upgraded, and effectively maintained.</b></p> <p>1.1 Prepare bidding documents, RFPs, and award contracts for CW 1 &amp; 2, RIC, and construction supervision. December 2017  1.2 Prepare RFPs and award contract for studies and supervision of bridge works. July 2018  1.3 Prepare DED and safeguards documents for bridge works. February 2020  1.4 Implement the LARP for bridge works. December 2020  1.5 Prepare bidding documents and award contracts for bridge works. November 2020  1.6 Prepare DED for the Goroka Bypass. December 2020  1.7 Prepare bidding documents; RFPs, and award civil works contracts for CW 1 &amp; 2 and construction supervision for Tranche 2. November 2020</p> <p><b>2. Output 2: Road safety increased and sustained for pedestrians and vehicle passengers on the Highlands Highway.</b></p> <p>2.1 Prepare RFP and award contracts for Community Road Safety Pilots in Minj and Henganofi Districts. December 2017  2.2 Prepare RFP and award contracts for Community Road Safety Pilots in three other districts. December 2020</p> <p><b>3. Output 3: Institutional capacity of DOW to deliver the investment program and sustain its benefits strengthened.</b></p> <p>3.1 Appoint DOW staff to PMO in Goroka. June 2017  3.2 Prepare DOW training needs assessment. July 2017</p> <p><b>Program Management Activities</b></p> <ul style="list-style-type: none"> <li>• PMO and PSC Secretariat established and staffed by July 2017</li> <li>• PPMS functioning by July 2017</li> <li>• Project quarterly coordination meeting and reports starting June 2017</li> </ul>			
<p><b>Inputs</b></p> <p>ADB: \$302 million (\$272 million OCR loan, \$30 million COL loan)  Government: \$44 million  Other Cofinanciers: \$11.5 million (grant)</p>			

ADB = Asian Development Bank, DED = detailed engineering design, COL = concessional ordinary capital resources lending, DOW = Department of Works, GAP = Gender Action Plan, iRAP = International Road Assessment Program, IRI = international roughness index, km = kilometer, PMO = Project Management Office, iRAP = International Road Assessment Program, NARI = National Agricultural Research Institute, NRSC = National Road Safety Council, OCR = ordinary capital resources, OPRC = output & performance based road contracts, PPMS = project performance monitoring system, PSC = Program Steering Committee, RIC = road investment contract, RFP = Requests for Proposals, TSSP = Transport Sector Support Program,

<sup>a</sup>Department of National Planning and Monitoring. 2010. Development Strategic Plan.

<sup>b</sup>Department of Transportation. 2014. National Transport Strategy 2014 – 2030.

<sup>c</sup>Department of National Planning and Monitoring. 2014. National Strategy for Responsible Sustainable Development for Papua New Guinea, 2014 StaRS, 2<sup>nd</sup> Edition.

Source: Asian Development Bank



## B. Monitoring

116. **Project performance monitoring.** DOW will establish a project performance and monitoring system within six months of loan effectiveness. ADB and DOW will agree on a set of indicators for monitoring and evaluating how well the Investment Program and individual tranches achieve its goals and purposes. These indicators will be refined and monitored during implementation of Tranche 1. The indicators will include data for monitoring economic development, road safety, socioeconomic development, environmental impact, and institutional development. Monitoring and evaluation will be based on gender-disaggregated data for social and poverty impact indicators. DOW will monitor and evaluate the indicators according to the agreed framework on a quarterly basis to determine the efficiency and effectiveness of the Project. Sex and income disaggregated baseline data for output and outcome indicators will be collected and reported quarterly through the DOW's quarterly progress reports (QPR) and after each ADB review mission. These QPR will provide information necessary to update ADB's project performance reporting system.<sup>16</sup>

117. **Compliance monitoring.** The GoPNG and ADB will jointly undertake a mid-term review of Tranche 1 within two years of commencement. The midterm review will focus on (i) project impacts, (ii) implementation progress, (iii) progress on policy framework, (iv) performance of consultants and contractors, (v) progress in capacity building and institutional strengthening, (vi) status of compliance with undertakings in the financing framework agreement and covenants in the individual loan agreements, and (vii) the need for any mid-term changes in the scope or schedule of the Investment Program to ensure full achievement of the impacts.

### i. Safeguards Monitoring

118. **Environment.** The DOW and PMO with support from the supervision consultant, will monitor the contractor and check compliance with the approved CEMP and any other contractual requirements on a regular basis. The QPR will cover a summary of the contractor's monthly reports, details of monitoring data collected, and analysis of monitoring results, recommended mitigation measures, environmental training conducted, and environmental violations and corrective actions taken. The DOW/PMO will include safeguards activities in the QPR and based on the QPR prepare semi-annual safeguards monitoring reports and submit to the EA and ADB. The checklist in Appendix 4 can be used for safeguards monitoring. The table in Appendix 4 sets out the suggested contents for the semi-annual safeguards monitoring report.

119. **Land acquisition and resettlement.** DOW will monitor activities associated with land acquisition and resettlement. The monitoring will include reporting on progress of activities in the implementation schedule with particular focus on public consultations, land acquisition, timeliness of payment of compensation, and level of satisfaction among APs. As noted above, the DOW will include safeguards activities in the QPR and prepare and submit semi-annual safeguard monitoring reports to ADB. The LARPs describe detailed arrangements for monitoring and reporting following the suggested contents and checklist provision included in Appendix 4. The resettlement/social safeguards specialist will assist DOW in monitoring of safeguard activities and preparation, review and disclosure of the safeguard monitoring reports.

## C. Evaluation

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<sup>16</sup> ADB's project performance reporting system is available at:  
<http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>.

120. Review missions will be conducted semi-annually to monitor project implementation, including progress of civil works, financial management, safeguards, and compliance with loan covenants and assurances. It is envisaged that a mid-term review mission will be fielded in 2019 and as outlined in PAI 3.11 it is to include a procurement review for effective implementation (PREI) to evaluate key indicators and risks that are associated with the executing agency's procurement performance. Within six months of physical completion of Tranche 1, DOW will submit a project completion report to ADB.<sup>17</sup>

## D. Reporting

121. DOW will provide ADB with (i) QPR in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan and (d) updated implementation plan for next 12 months; and (iii) a project completion report within six months of physical completion of an approved tranche. To ensure works and associated tranches continue to be both viable and sustainable, project accounts and the EA audited financial statements, together with the associated auditor's report, should be adequately reviewed.

## E. Stakeholder Communication Strategy

122. Within six months of the start of Tranche 1, a consultation and participation plan will be prepared by DOW (supported by supervision consultants) that will identify stakeholder groups, indicate the types of information, means of communication, who will provide what and to whom including at what intervals, and how and when disclosure will be undertaken. The plan will be reviewed and endorsed by ADB.

<b>Project Documents</b>	<b>Means of Communication</b>	<b>Responsible Party</b>	<b>Frequency</b>	<b>Audience(s)</b>
Project Information Document (PID)	ADB's website	ADB	Quarterly updating	General Public
Facility Financing Agreement (FFA)	ADB's website	ADB	Always available online	General Public
Loan Agreement	ADB's website	ADB	Always available online	General Public
Reports and Recommendations of the President (RRP)	ADB's website	ADB	Posted within 2 weeks of loan approval; Always available online	General Public
Environmental Impact Assessment Reports (EARF and IEE)	ADB's website	DOW, ADB	IEE or EIA and EARF posted on the websites before project appraisal; Documents always available online at ADB and PR's websites; EMP updated regularly	General Public, project-affected people
Land Acquisition and Resettlement Reports	ADB's website	DOW, ADB	LARPs posted before contract Document	General Public, project-affected people

<sup>17</sup> Project completion report format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

Project Documents	Means of Communication	Responsible Party	Frequency	Audience(s)
(LARF and LARP, if required)			available online at ADB and PR's websites	
Procurement requirements	ADB website for procurement notice (ACN/SPN), invitation for bids (IFB), Local newspaper advertisement	DOW, ADB	Available online (current and archive)	General public, potential civil works contracting firms
Consulting services requirement	ADB website for recruitment notice (CSRN) for expression of interest	DOW	When required	General public, consulting firms
	ADB website for list of shortlisted firms	ADB	Always available	General public, consulting firms
	Request for proposals, public opening	DOW		General public, consulting firms
Facility Administration Memorandum	ADB's website	ADB	After loan negotiations	General Public
Safeguard Monitoring Reports	ADB's website	ADB	Routinely disclosed, specific requirements	General Public, project-affected people in particular

ADB=Asian Development Bank, ACN= advance contracting notice, DOW = Department of Works, EARF = environmental assessment and review framework, CSRN = consulting services recruitment notice, FFA = framework financing agreement, IEE = initial environmental examination, IFB = invitation for bids, PID = project information document, RRP = Report and Recommendation of the President, SPN = specific procurement notice.

## IX. ANTICORRUPTION POLICY

123. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the Investment Program.<sup>18</sup> All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the EA, IAs, and all contractors, suppliers, consultants and other service providers procured under the Investment Program. 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 Investment Program.<sup>19</sup>

124. To support these efforts, relevant provisions of ADB's Anticorruption Policy are included in the loan regulations and the bidding documents for the project. In particular, 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 DOW, all contractors, suppliers, consultants, and other service providers as they relate to the Investment Program. The project design and implementation arrangements provide for mitigation of corruption risks. Risks associated with project management, including procurement and disbursement, will be mitigated by (i) engaging international and national consultants to advise and assist in the procurement of goods and services, procurement and supervision of civil works, and the engagement of other consultants; (ii) introducing a dual signing system in which the civil works contractor awarded the contract will

<sup>18</sup> Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

<sup>19</sup> ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

also sign an anticorruption contract with the employer; and (iii) periodic inspection by the PMO of the contractors' activities relating to fund withdrawals and settlements. DOW will establish a website for the Investment Program in which it will disclose implementation progress; bid notifications and their results; and provides grievance mechanism against any corrupt practice. References on ADB's Anticorruption Policy can be accessed through the following link: <http://www.adb.org/Integrity/>.

## **X. ACCOUNTABILITY MECHANISM**

125. 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.<sup>20</sup>

## **XI. RECORD OF FAM CHANGES**

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<sup>20</sup> For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

## **PROCUREMENT SCHEDULES AND S-CURVES**

### **1.1 Key Milestones for CW1 and CW2**

Single-stage, single envelope procedure, without prequalification

Estimated base cost + 10% tax: CW1 = US\$ 90.68 mill, CW2 = US\$75.54 mill.

<b>No.</b>	<b>Activity</b>	<b>Calendar Days</b>	<b>Completion Date</b>	<b>Cumulative Days</b>
1	GPN & IFB/Preparation (DOW to upload ADB's website)	2	03-Jun-17	2
2	Clearance by ADB	4	07-Jun-17	6
3	DOW prepares draft Bidding Documents (BD)		11-Jun-17	10
4	GPN & IFB/Preparation (GPN upload on www.adb.org)		22-Jun-17	21
5	Approval of Draft BD by ADB - Prior Review		22-Jun-17	21
7	Completion of BD	15	22-Jun-17	21
8	Clearance and approval of BD by DOW	7	29-Jun-17	28
9	Submit to ADB for approval	7	06-Jul-17	35
10	Issue Bid Documents to Interested Contractors		06-Jul-17	35
11	Pre-bid meeting, site visit and workshop		06-Jul-17	35
12	Receive and open Bids	84	28-Sep-17	119
13	Post-qualification and evaluation of Bids by TEC	42	09-Nov-17	161
14	DOW approval of bid recommendation	5	14-Nov-17	166
15	ADB's comments and no-objection of bid evaluation	5	19-Nov-17	171
16	CSTB approval of bid recommendation	14	03-Dec-17	185
17	DOW issues invitation for contract negotiations	7	10-Dec-17	192
18	Negotiation period	5	15-Dec-17	197
19	Office of State Solicitor review of contract documents	14	29-Dec-17	211
20	ADB's comments on draft contract and no objection	10	08-Jan-18	221
21	National Executive Council approval of award	14	22-Jan-18	235
22	Issue LOA and Contract Agreement to Contractor	2	24-Jan-18	237
23	Technical Meeting with Contractor	1	25-Jan-18	238
24	Contractor submits Performance Security	28	22-Feb-18	266
25	Contract Signing - Governor-General and Contractor	5	27-Feb-18	271
26	DOW submits copy of contract to ADB	1	28-Feb-18	272
27	DOW issues NTP to Contractor and pays Advance Pmt	3	03-Mar-18	275
28	Mobilization	15	18-Mar-18	290

Notes:

TEC = Technical Evaluation Committee convened by DOW

LOA = Letter of Acceptance

Holiday period over Christmas will add a further 2 - 4 weeks to the dates.

**1.2 Key Milestones for RIC Contract**

Single-stage, single envelope procedure, without prequalification

Estimated base cost + 10% tax = US\$ 59.23 million

<b>No.</b>	<b>Activity</b>	<b>Calendar Days</b>	<b>Completion Date</b>	<b>Cumulative Days</b>
1	GPN & IFB/Preparation (DOW to upload ADB's website)	2	03-Jun-17	2
2	Clearance by ADB	4	07-Jun-17	6
3	DOW prepares draft Bidding Documents (BD)		11-Jun-17	10
4	GPN & IFB/Preparation (GPN upload on www.adb.org)		22-Jun-17	21
5	Approval of Draft BD by ADB - Prior Review		22-Jun-17	21
7	Completion of BD	15	22-Jun-17	21
8	Clearance and approval of BD by DOW	7	29-Jun-17	28
9	Submit to ADB for approval	7	06-Jul-17	35
10	Issue Bid Documents to Interested Contractors		06-Jul-17	35
11	Receive and open Bids	60	04-Sep-17	95
12	Post-qualification and evaluation of Bids by TEC	35	09-Oct-17	130
13	DOW approval of bid recommendation	5	14-Oct-17	135
14	ADB's comments and no-objection of bid evaluation	5	19-Oct-17	140
15	CSTB approval of bid recommendation	14	02-Nov-17	154
16	DOW issues invitation for contract negotiations	7	09-Nov-17	161
17	Negotiation period	5	14-Nov-17	166
18	Office of State Solicitor review of contract documents	14	28-Nov-17	180
19	ADB's comments on draft contract and no objection	10	08-Dec-17	190
20	National Executive Council approval of award	14	22-Dec-17	204
21	Issue LOA and Contract Agreement to Contractor	2	24-Dec-17	206
22	Technical Meeting with Contractor	1	25-Dec-17	207
23	Contractor submits Performance Security	28	22-Jan-18	235
24	Contract Signing - Governor-General and Contractor	5	27-Jan-18	240
25	DOW submits copy of contract to ADB	1	28-Jan-18	241
26	DOW issues NTP to Contractor and pays Advance Pmt	3	31-Jan-18	244
27	Mobilization	15	15-Feb-18	259

Notes:

TEC = Technical Evaluation Committee convened by DOW

LOA = Letter of Acceptance

Holiday period over Christmas will add a further 2 - 4 weeks to the dates.

**1.3 Key Milestones for PMO Building Contract** (NCB, single-stage, single envelope)

Single-stage, single envelope procedure, without prequalification

Estimated base cost + 10% tax = US\$ 1.59 million

<b>No.</b>	<b>Activity</b>	<b>Calendar Days</b>	<b>Completion Date</b>	<b>Cumulative Days</b>
1	GPN & IFB/Preparation (DOW to upload ADB's website)	2	03-Sep-17	2
2	Clearance by ADB	4	07-Sep-17	6
3	Draft Bidding Document (BD) Preparation		07-Sep-17	6
4	GPN & IFB/Preparation (GPN upload on www.adb.org)	5	12-Sep-17	11
5	Approval of Draft BD by ADB, DOW - Prior Review		12-Sep-17	11
7	Completion of BD	5	17-Sep-17	16
8	Clearance and approval of BD by DOW	7	24-Sep-17	23
9	Submit to ADB for approval	7	01-Oct-17	30
10	Issue Bid Documents to Interested Builders		01-Oct-17	30
11	Receive and opening of Bids	35	05-Nov-17	65
12	Post-qualification & evaluation of bids by TEC	14	19-Nov-17	79
13	DOW approval of bid recommendation	5	24-Nov-17	84
14	ADB's comments and no-objection of evaluation	5	29-Nov-17	89
15	CSTB approval of bid recommendation	14	13-Dec-17	103
16	DOW issues invitation for contract negotiations	7	20-Dec-17	110
17	Negotiation period	5	25-Dec-17	115
18	Office of State Solicitor review of contract documents	14	08-Jan-18	129
19	ADB's comments on draft contract and no objection	10	18-Jan-18	139
20	Issue LOA and Contract Agreement to Contractor	2	20-Jan-18	141
21	Technical Meeting with Builder	1	21-Jan-18	142
22	Builder submits Performance Security	7	28-Jan-18	149
23	Contract Signing	2	30-Jan-18	151
24	DOW submits copy of contract to ADB	1	31-Jan-18	152
25	DOW issues NTP to Contractor and pays Advance Pmt	3	03-Feb-18	155
26	Mobilization	1	04-Feb-18	156

**Notes:**

TEC = Technical Evaluation Committee convened by DOW

LOA = Letter of Acceptance

Holiday period over Christmas will add a further 2 - 4 weeks to the dates.

**1.4 Key Milestones for:**

(i) **CS1** (services for CW1 contract) - Estimated base cost + 10% tax = US\$ 16.41 mill.

(ii) **CS2** (services for CW2, RIC & Goroka Bypass) - Estimated base cost + 10% tax = US\$ 29.10 mill.

Quality- and cost-based selection (QCBS)

<b>No.</b>	<b>Activity</b>	<b>Calendar Days</b>	<b>Completion Date</b>	<b>Cumulative Days</b>
1	Publication of EOI on ADB website, relevant publications	2	03-Jun-17	2
2	Receipt of EOIs	28	01-Jul-17	30
3	SL & RFP submission to ADB by DOW	5	06-Jul-17	35
4	ADB approval of RFP & SL	10	16-Jul-17	45
5	Issue RFP to shortlisted firms by DOW	3	19-Jul-17	48
6	Receipt of proposals (Technical and Financial)	42	30-Aug-17	90
7	Evaluation of Technical Proposals by TEC	21	20-Sep-17	111
8	Submission of technical evaluation to ADB	1	21-Sep-17	112
9	ADB's approval of technical evaluation	12	03-Oct-17	124
10	Issue of notice of public opening of financial proposal	2	05-Oct-17	126
11	Public opening of financial proposal by DOW	7	12-Oct-17	133
12	DOW ranking of proposals and approval	7	19-Oct-17	140
13	ADB's approval of evaluation and final ranking,	14	02-Nov-17	154
14	CSTB approval of bid recommendation	21	23-Nov-17	175
15	DOW issues invitation for contract negotiations	7	30-Nov-17	182
16	Negotiation period	3	03-Dec-17	185
17	Submit minutes of negotiations & draft contract to ADB	1	04-Dec-17	186
18	ADB's approval of contract documents	7	11-Dec-17	193
19	Office of State Solicitor review of contract documents	14	25-Dec-17	207
20	Signing of Contract	2	27-Dec-17	209
22	DOW issues NTP to Consultant and pays Advance Pmt	5	01-Jan-18	214
23	Consultant's Mobilization	14	15-Jan-18	228

Notes:

TEC = Technical Evaluation Committee convened by DOW



### 1.5 Key Milestones for Consulting Services for Bridge Improvement Program

Quality- and cost-based selection (QCBS)

Estimated base cost + 10% tax = US\$ 1.82 million

No.	Activity	Calendar Days	Completion Date	Cumulative Days
1	Publication of EOI on ADB website, relevant publications	2	03-Jun-19	2
2	Receipt of EOIs	28	01-Jul-19	30
3	SL & RFP submission to ADB by DOW	5	06-Jul-19	35
4	ADB approval of RFP & SL	10	16-Jul-19	45
5	Issue RFP to shortlisted firms by DOW	3	19-Jul-19	48
6	Receipt of proposals (Technical and Financial)	42	30-Aug-19	90
7	Evaluation of Technical Proposals by TEC	21	20-Sep-19	111
8	Submission of technical evaluation to ADB	1	21-Sep-19	112
9	ADB's approval of technical evaluation	12	03-Oct-19	124
10	Issue of notice of public opening of financial proposal	2	05-Oct-19	126
11	Public opening of financial proposal by DOW	7	12-Oct-19	133
12	DOW ranking of proposals and approval	7	19-Oct-19	140
13	ADB's approval of evaluation and final ranking,	14	02-Nov-19	154
14	CSTB approval of bid recommendation	14	16-Nov-19	168
15	Office of State Solicitor review of contract documents	14	30-Nov-19	182
16	DOW issues invitation for contract negotiations	1	01-Dec-19	183
17	Notification for contract negotiations	7	08-Dec-19	190
18	Negotiation period	2	10-Dec-19	192
19	Submit minutes of negotiations & draft contract to ADB	1	11-Dec-19	193
20	ADB's approval of contract	7	18-Dec-19	200
21	Signing of Contract	2	20-Dec-19	202
23	DOW issues NTP to Consultant and pays Advance Pmt	3	23-Dec-19	205
24	Consultant's Mobilization	14	06-Jan-20	219

Notes:

TEC = Technical Evaluation Committee convened by DOW

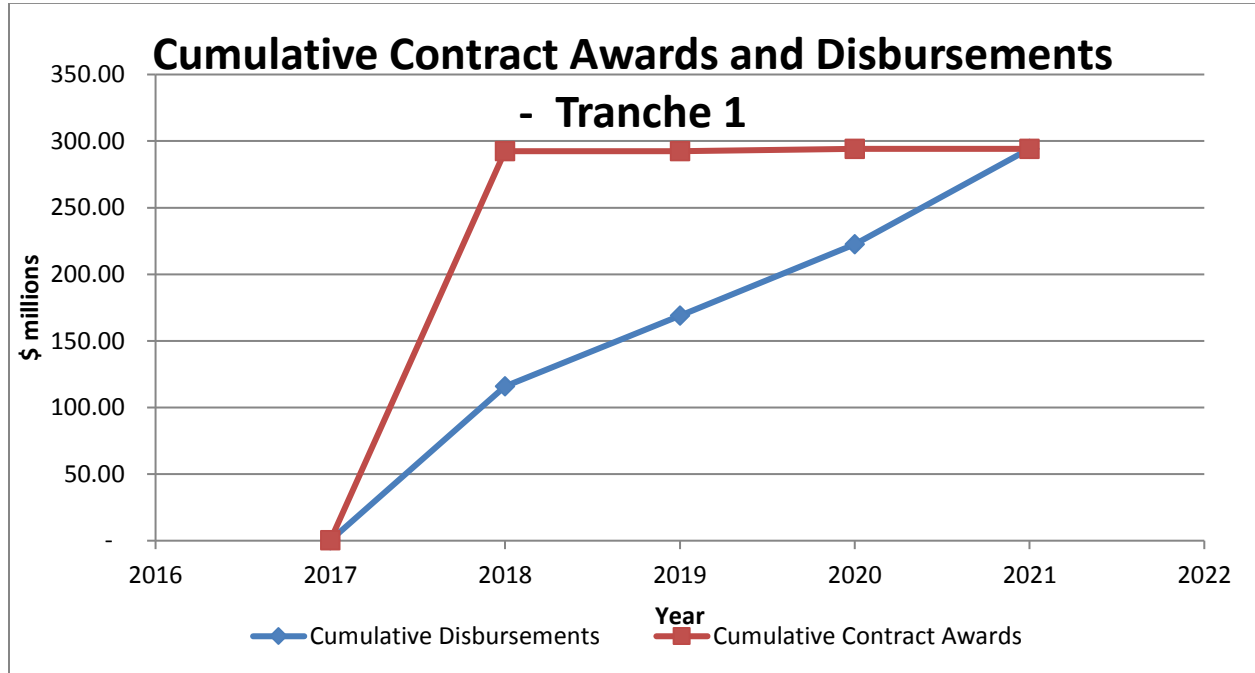
## 1.6 Key Milestones for Consulting Services for PMO Building

Consultant Quality selection (CQS)

No.	Activity	Calendar Days	Completion Date	Cumulative Days
1	Publication of EOI on ADB website, relevant publications	2	14-Mar-17	2
2	Receipt of EOIs	21	04-Apr-17	23
3	SL & RFP submission to ADB by DOW	5	09-Apr-17	28
4	ADB approval of RFP & SL	10	19-Apr-17	38
5	Issue RFP to shortlisted firms by DOW	3	22-Apr-17	41
6	Receipt of proposals (Technical and Financial)	28	20-May-17	69
7	Evaluation of Technical Proposals by TEC	14	03-Jun-17	83
8	Submission of technical evaluation to ADB	1	04-Jun-17	84
9	ADB's approval of technical evaluation	10	14-Jun-17	94
10	Issue of notice of public opening of financial proposal	2	16-Jun-17	96
11	Public opening of financial proposal by DOW	7	23-Jun-17	103
12	DOW ranking of proposals and approval	7	30-Jun-17	110
13	ADB's approval of evaluation and final ranking	14	14-Jul-17	124
14	CSTB approval of bid recommendation	14	28-Jul-17	138
15	Office of State Solicitor review of contract documents	14	11-Aug-17	152
16	DOW issues invitation for contract negotiations	1	12-Aug-17	153
17	Notification for contract negotiations	7	19-Aug-17	160
18	Negotiation period	2	21-Aug-17	162
19	Submit minutes of negotiations & draft contract to ADB	1	22-Aug-17	163
20	ADB's approval of contract	7	29-Aug-17	170
21	Signing of Contract	2	31-Aug-17	172
23	DOW issues NTP to Consultant and pays Advance Pmt	1	01-Sep-17	173
24	Consultant's Mobilization	7	08-Sep-17	180

Notes:

TEC = Technical Evaluation Committee convened by DOW

**S-CURVES****Contract and Disbursement S-curve – Tranche 1**

	2017	2018	2019	2020	2021
Total Disbursements	0.22	115.63	52.98	53.59	71.74
<b>Cumulative Disbursements</b>	<b>0.22</b>	<b>115.85</b>	<b>168.84</b>	<b>222.43</b>	<b>294.17</b>
Total Awards	0.22	292.13		1.82	
<b>Cumulative Awards</b>	<b>0.22</b>	<b>292.35</b>	<b>292.35</b>	<b>294.17</b>	<b>294.17</b>

**OUTLINE TERMS OF REFERENCE FOR  
CONSULTING SERVICES FOR CONSTRUCTION SUPERVISION OF  
CIVIL WORKS ROAD CONTRACT 1 (CW-1)**

**I. INTRODUCTION**

1. The Department of Works (DOW), Government of Papua New Guinea is implementing a number of highway projects funded by the Asian Development Bank (ADB) which involve design, rehabilitation and reconstruction of the sections of highways. For this purpose, civil works contractors have been engaged using International Competitive Bidding (ICB) procedures. The contractors carry out the civil works in accordance with technical specifications that form part of the contracts they enter into. International consultants are engaged to supervise the works. The main responsibilities of the consultants are administration of the contracts, review and approval of the contractors' designs, supervision of the works for quality, cost and time, and, where required under the contracts, certification of the works.

2. The Highlands Highway is a critical link in PNG's road network. It carries the bulk of traffic in the region from the hinterlands to the nation's most active port at Lae. The Sustainable Highlands Highway Investment Program (SHHIP) will repair, rehabilitate, upgrade and maintain the core 430 km section of Highlands Highway between Nadzab airport (Lae) to Kagamuga airport (Mt. Hagen). Procurement of contractors. Investment in SHHIP will be divided into three overlapping tranches over a ten year period.

3. The civil works to be undertaken under Tranche 1 will be executed under three major civil works contracts:

- Civil Works Contract 1 ("**CW-1**"), for the repair, and maintenance of the Highlands Highway between Lae Nadzab and the Henganofi Bridge (210 km) (the "**Road**");
- Civil Works Contract 2 ("**CW-2**"), for the repair, upgrading and maintenance of two sections of the Highlands Highway, the first between the Henganofi Bridge and Magiro Bridge, and the second between the Miunde Bridge and Mt Hagen Kagamuga (total 161 km);
- Rehabilitation Investment Contract ("**RIC**") for the complete rehabilitation and upgrading of the entire section of the Highlands Highway between Magiro Bridge and Miunde Bridge (57 km).

4. DOW wishes to engage a firm of consultants (the "**Supervision Consultant**") to supervise the CW-1 contract ("**the Contract**"). DOW will be the Executing Agency for the Project and the Supervision Consultant will act as the Engineer under the Contract. Procurement of the civil works contracts will be carried out by DOW in accordance with bidding documents prepared by DOW. The contract duration for the services of the Supervision Consultant will be for a four year period, coinciding with the duration of Tranche 1.

5. The rehabilitation and maintenance of the Highlands Highway will continue under Tranches 2 and 3 of the Multi-tranche Financing Facility (MFF).

**II. SCOPE OF WORK**

6. The Supervision Consultant's scope of work is set forth below.

7. Assistance during procurement of the CW-1 Contractor: DOW will prequalify bidders for the Contract and prepare the bidding documents for the selection of the CW-1 contractor (the “**Contractor**”). The Supervision Consultant shall assist DOW with: (i) the evaluation of the bids received, (ii) the preparation of the bid evaluation report, and (iii) the negotiation of the Contract.

8. Design review. The Supervision Consultant shall establish the schedule, methods and procedures for reviewing the detailed engineering designs, construction drawings and other documentation submitted by the Contractor in accordance with the requirements of the Contract. The Supervision Consultant will review such submissions and assess their compliance with applicable laws and the design standards, criteria and conceptual designs specified in the Contract. The reviews will be completed within times set forth in the Contract.

9. Contract administration. The CW-1 contract differs from traditional contracts for civil works in that it includes elements of work that will be paid for on an output and performance basis. Payment of such works is made according to measured outputs reflecting the achievement of minimum performance standards of the Road, expressed as “Service Levels”. These Service Levels are defined in the Contract by reference to threshold values of a number of criteria such as road availability, carriageway condition, road safety furniture, drainage, slope stability, vegetation and durability. The Contract has been drafted for the application of a performance-based approach to the maintenance aspects of the Works. The Supervision Consultant will administer the Contract, performing the certification role of Engineer and ensuring that the Contractor fulfils its obligations under the Contract. The Supervision Consultant will nominate an Engineer’s representative who will reside full-time in the project area.

10. Supervision of the Works: The Supervision Consultant will oversee the work of the Contractor, ensuring that the road is repaired, maintained and, if applicable, improved in accordance with the provisions of the Contract. This will include the inspection and testing of the works and the assessment of the Service Levels achieved by the Contractor at different locations along the length of the Road. At all times a person will be nominated by the Supervision Consultant to be the Engineer’s representative and that person will reside full-time in the project area during such period of nomination.

11. Safeguards supervision.

a. Environmental safeguards. The Supervision Consultant will review the Construction Environmental Management Plan (CEMP) prepared by the Contractor and verify that it is consistent with the environmental safeguards prescriptions and requirements of the Contract. Once the CEMP has been cleared by the Supervision Engineer and vetted by DOW’s representative at the PMO, the Supervision Engineer will ensure that the Contractor’s operations comply with the CEMP and that environmental provisions are strictly enforced.

b. Social safeguards. The Supervision Consultant will review Land Acquisition and Resettlement Plans prepared by the PMO and verify that they are consistent with the LARF and Contract provisions. The SC will supervise, monitor and assess safeguards compliance according to the LARPs and GAP, and recommend any corrective actions where needed, in collaboration with the PMO Safeguards team. The SC will report on implementation of the LARP, and ensure APs and key stakeholders are satisfied with safeguards implementation. The SC will also coordinate and monitor the HIV/AIDS, STI and gender awareness programs arranged by the Contractor.

12. Road drainage issues. Roadside dwellers and communities have complained that the Highlands Highway drainage systems have caused damage to their properties. At the request of, and in collaboration with, the social safeguards office of the PMO, the Supervision Engineer will investigate sufficient such locations to develop an understanding of the causes of the damage and to propose cost-effective remedial designs. The Supervision Engineer will supervise the implementation of works by the Contractor in accordance with these designs and will certify payment according to the rates and prices of the day works schedule of the Bill of Quantities.

13. Assistance to the Contractor: Given the nature of the performance-based approach of the Contract, the Supervision Consultant is expected to adopt a collaborative approach in supervising the Contractor to the extent possible without compromising the Employer's rights under the contract. This may involve the provision of non-binding advice and cooperation in meeting the Contractor's reasonable requests for assistance.

14. Coordination with SHHIP works carried out under other contracts. As outlined above, the repair, rehabilitation, upgrading and maintenance of the Highlands Highway under the SHHIP project is being undertaken under three major contracts, of which the Contract is one. The Supervision Consultant, in establishing and overseeing the Contractor's establishment of procedures, construction and traffic management policies, safeguards plans, document formats and the like, shall coordinate with the consultant supervising the other contracts to achieve reasonable consistency and uniformity across the SHHIP works. The Supervision Consultant will devise and enforce procedures to provide for the efficient and orderly passage of vehicles of the other contractors across sections of road under repair and maintenance by the Contractor.

### **III. CONSTRUCTION SUPERVISION TEAM**

15. The contract for the Supervision Consultant involves an estimated 924 person-months (352 international, 572 national) of consulting services for the supervision of the road repair and maintenance work, the strengthening of the safeguards capacity of DOW and the provision of other services specified in this Terms of Reference. The consulting services will be procured using the Quality and Cost Based System (QCBS) (90-10).

16. The Consultant's team shall include the key experts listed in the table below. An inclusive listing of their tasks is provided in the text following the table.

<b>Position</b>	<b>Number</b>	<b>Total Person-months</b>
<b>International</b>		
Chief Resident Engineer / Team Leader	1	44
Resident Engineer	3	132
Materials / Quality Engineer	1	44
Cost / Quantity Surveyor	1	44
Environment & Social Safeguards Specialist	1	44
Road Safety Specialist	1	44
<b>National</b>		
Site Engineer	3	132
Materials Engineer	3	132
Surveyors	3	132
Senior supervision engineer	1	44
Environment Safeguards Specialist	1	44
Social Safeguards Specialist	1	44
Road Safety Specialist	1	44
<b>Total</b>	<b>21</b>	<b>924</b>
<b>Cost estimates (\$)</b>		

## **A. Engineering**

### **17. Chief Resident Engineer / Team Leader (1 № international, 44 person-months)**

- a. Provide effective and regular project management and construction management leadership and ensure that work is executed in accordance with the Contract and to the standards, specifications and procedures of the ADB and approved environmental, social, safety and quality management plans.
- b. Review the contract documents, bills of quantities, cost estimates, construction drawings, specifications, etc. and ensure all documents comprising the Contract are sound.
- c. Assist DOW with the evaluation of bids received for the Contract and the preparation of the Bid Evaluation Report.
- d. Ensure all pre-contractual obligations of the Contractor are complied with prior to the execution of the Contract. Check that the Contractor provides (and maintains) valid securities and insurances, and meets all other contractual prerequisites before work on the Road is commenced.
- e. Arrange a pre-commencement meeting with the Contractor and Employer to discuss matters related to contract commencement, delegation of authorities, communications, construction and maintenances programs, Contractor's facilities, subcontract work, security, community-related matters and matters of relevance.
- f. Review and approve the Contractor's implementation schedule, and assess the progress of work against the approved program using the project scheduling software employed by the Contractor and DOW. The Consultant will keep the Employer informed of any delay or potential delays in the implementation schedule and will take all necessary actions to minimise or prevent potential delays
- g. Monitor the quality of the work and its compliance with the requirements of the Contract. To this end the Supervision Consultant shall inspect and approve material sources

identified by the Contractor, oversee quality testing by the Contractor and identify any sections of the Road that do not meet the specified Service Levels. The Supervision Consultant shall instruct the Contractor to remedy any deficiencies or remove and replace any works that are not in accordance with the Employer's Requirements.

- h. Prepare and process variation orders, evaluate claims for additional costs and extensions of time, and otherwise administer the provisions of the Contract.
- i. Arrange monthly meetings with the Contractor and prepare monthly and quarterly reports describing the progress of the works and the work performed, providing details of the labour and equipment mobilised during the reporting period. Problems will be identified and actions agreed to overcome them. The work to be performed during the next reporting period will be discussed. The Supervision Consultant shall also maintain a day-to-day diary which shall record all events pertaining to the administration of the contract which may at a later date be of assistance in resolving queries which may arise in connection with the execution of the works. This will include (without limitation) descriptions of climatic conditions, accounts of notable discussions, descriptions of inspections undertaken and deployment of plant, labour and materials, and any instructions issued to the Contractor.
- j. Prepare quarterly cash flow projections for the Employer in an agreed format, readily identifies variances between planned and actual cash flows and highlights budget estimates and cash flow requirements for outstanding works.
- k. Review, approve and monitor the Contractor's plans to minimise disruptions to the flow of traffic during repair and maintenance works, and ensure that these activities do not compromise public safety.
- l. Monitor and inspect the contractor's quality control program, including regular checking of the materials testing equipment, methods and frequencies to confirm compliance of the works with the requirements of the Contract. The Supervision Consultant shall also regularly check the Contractor's material and road testing records to ensure accurate cross-referencing of tests against the locations from which the tested samples were obtained.
- m. Ensure that all project records are maintained in a safe environment and to maintain back-up copies in alternative locations.
- n. Liaise with local authorities and local communities on a regular basis and monitor the scope and effectiveness of awareness programs. Where appropriate, the Supervision Consultant shall work together with the Contractor to implement programs and initiate actions that involve the local people and minimize disturbances.
- o. Process interim and final payment certificates and, as appropriate, certify payment.
- p. Upon satisfactory completion of a section or the whole of the Works, measure the completed works and after all contractual requirements have been met, issue a completion certificate. The Supervision Consultant shall confirm that the Contractor's "as-built drawings" are a true record of the Works as constructed.
- q. Assist the Contractor with the interpretation of the contract documents and advise the Employer with respect to the resolution of disputes, arbitration or litigation, as required;



- r. Incorporate training programs for field staff of PMO and provincial administrations. To develop skills in project management, including quality assurance and contract administration.
  - s. Assist the DOW to prepare the Project Completion Report as required by the ADB.
18. **Resident Engineer** (3 №, international, 44 person-months each)
- a. Assist the Chief Resident Engineer in the execution of his/her tasks.
  - b. Inspect regularly the contractor's plant, staff availability, and safety measures, etc. and ensure they are adequate and in accordance with the terms and conditions specified in civil works contracts.
  - c. Administer and supervise the repair and maintenance work on a day to day basis and undertake inspections prior to and during the work.
  - d. Ensure the Contractor complies with the agreed implementation schedule and assist whenever appropriate.
  - e. Maintain regular meetings with local communities and encourage the Contractor to ensure participation of the local community, including women, in undertaking minor works, wherever appropriate.
  - f. Ensure the Contractor fully complies with the PNG labour Laws and other regulations.
  - g. Approve all survey checks and ensure that the work conforms to the specified requirements.
  - h. Identify environmentally sensitive and protected areas which could be affected directly or indirectly when sourcing materials for construction work.
  - i. Monitor the compliance of the Contractor's testing program with the regime specified in the Contract and determine whether: (i) road surfaces, fills and other materials used in the works meet specified standards; (ii) the repair and maintenance works are of the required quality, and (iii) minimum Service Levels are maintained.
  - j. Ensure road drainage structures such as side drains, culverts and cross drains provide effective control of surface water and promote a stable moisture regime in the road formation.
  - k. Evaluate the Contractor's erosion management methods and erosion monitoring programs, including rehabilitation measures and revegetation of surfaces, and, as necessary, supervise the adoption of best practice measures to minimize loss of topsoil from the Contractor's construction activities.
  - l. Evaluate and make recommendations to the Chief Resident Engineer on the Contractor's claims, disputes, contract time extensions, variations and other changes within and outside the contract.

19. **Materials Engineer** (1 № international, 44 person-months)

- a. Observe and provide non-binding advice to the Contractor on the establishment of construction camps, housing, borrow pits and quarries, stockpiles and storage for materials, equipment, etc.
- b. Ensure regular and accurate testing procedures and systems are adopted to monitor the quality of the construction methods and materials adopted by the Contractor and compliance of completed works with the contract.
- c. Promote the use of best practice methods in the design and construction of drainage structures and for controlling drainage generally.
- d. Evaluate the Contractor's erosion management methods and erosion monitoring programs, including rehabilitation measures and revegetation of surfaces, and, as necessary, supervise the adoption of best practice measures to minimize loss of topsoil from the Contractor's construction activities.

20. **Cost / Quantity Surveyor** (1 № international, 44 person-months)

- a. Assist the Chief Resident Engineer in the monitoring of the satisfactory financial management of the project.
- b. Prepare an elemental format for all construction activities and monitor the costs regularly.
- c. Prepare monthly contract payment estimates and certificates for payment, including cost estimates for construction and supervision.
- d. Maintain a permanent record of all measurements for the work quantities to be paid.
- e. Assist in preparing Bills of Quantities and make recommendations for certification of all monthly and other payments for the Engineer's consideration.
- f. Ensure procedures are adopted to maintain an efficient Project Cost Control System.
- g. Establish realistic costs for escalation, contingency, site allowances etc. and include these cost plans to provide a total project cost estimate for budget purposes.
- h. Provide assistance in preparing bids, estimates and quotations, as required.
- i. Assist DOW with the preparation of cash flow forecasts and Interim and Final Account valuations.
- j. Provide timely advice to the Chief Resident Engineer on the valuations of variations, unsolicited claims, time extensions etc. and highlight any actual or expected cost overruns. Provide guidance on measures to be adopted to avoid, reduce or manage them.
- k. Attend meetings as required by the Chief Resident Engineer and continue to monitor, update and control the costs.

21. **Site Engineer** (3 №, national, 44 person-months each)

- a. Assist in the supervision of the Contractor's work and administration of the contract. Where needed, assist the other site engineers and works supervisors in the monitoring of the Contractor's compliance with the terms and quality standards of the contract.
- b. In conjunction with the Chief Resident Engineer and the Resident Engineers, and in accordance with the requirements of the contract, establish standards of conduct and performance, levels of authority and lines of communications with the contractor on site within limits set by the Contract.
- c. Ensure the contractor performs the work in accordance with the technical requirements of the Contract.
- d. Advise the Chief Resident Engineer of potential delays, quantity variations, etc. and assist in preparing revised programs, schedules and estimates that reflect actual delays, price differences and additional costs.
- e. Coordinate work inspections and survey checks, and ensure adequate testing programs are regularly followed.
- f. Monitor the Contractor's compliance with approved traffic and safety requirements, safeguards standards and quality management plans.
- g. Maintain cordial relationships with the local communities and promote their participation in routine maintenance and similar minor work programs.
- h. Ensure that the Chief Resident Engineer are informed of all issues that may affect the performance of the Contract.
- i. Ensure that the site staff assigned for various activities carry out their duties responsibly.

22. **Materials Engineer** (3 № national, 44 person-months each)

- a. Provide assistance to the international Materials Engineer in setting out procedures for testing materials, construction methods, specified test methods etc.
- b. Monitor and inspect the laboratory and in-situ testing of materials (including soil, aggregates, crushed rock, concrete and bitumen) and ensure they fully conform to the requirements of the Contract.
- c. Assess the quality and quantity of construction materials from quarries and borrow pits and ensure their conformity with the Contract.
- d. Carry out necessary tests for liquid limit, CBR, grain size distribution, etc. and assist the Materials Engineer to approve their use for construction activities.
- e. Provide assistance and advice to the contractor during construction of drainage structures, checking their efficacy in controlling flows and shedding water away from the road formation.

- f. Maintain records of tests carried out including all calculation and check sheets.
- g. Provide on-the-job training facilities for DOW soils technicians and PMO staff.

23. **Surveyor** (3 №, national, 44 person-months each)

- a. Ensure surveys for all aspects of construction are conducted in accordance with the approved drawings of the Contract.
- b. Arrange and execute necessary field surveys to demarcate boundaries for construction limits as delineated in the approved construction drawings.
- c. Assist the local survey staff to carry out acquisition surveys as determined by the construction limits.
- d. Ensure that construction surveys are carried out to determine the pre-construction and post construction levels as directed by the field staff and all calculations are submitted to the Chief Resident Engineer as required.
- e. Assist the Chief Resident Engineer in the assessment of monthly interim payments, variations and unsolicited claims submitted by the Contractor, and in the examination of accounts.
- f. Incorporate on-the-job training for PMO survey staff when undertaking the project tasks.
- g. Carry out post-construction surveys for the final payment and provide assistance to the Chief Resident Engineer when preparing the Completion Report.

**B. Environmental and Social Safeguards**

24. **Environment and Social Safeguard Specialists** (1 № international, 44 person-months; 2 № national, 44 person-months each).

25. The Safeguards Specialists will assist in implementing the safeguards activities for OPRC-1 works and provide other related assistance to the PMO and other participants in the SHHIP, where needed. The tasks will be as follows:

- a. Update, Implement and Monitor the Environmental Management Plans.
  - Review and clear the CEMP for each section of the Road submitted by the Contractor and advise the Chief Resident Engineer that the CEMPs have been cleared to facilitate ADB's no objection to works commencing.
  - Ensure that the Contractor designates a staff member as environmental, health and safety officer (ESO) to be responsible for overseeing implementation of the CEMP, maintenance of the site diary and register of complaints and implementation of the GRM. The contractor, as part of the their monthly report, will include CEMP implementation and GRM issues.
  - Undertake frequent spot-checks and monitoring (at least every two months) to ensure that the Contractor is fully implementing the provisions of the approved CEMP and this is being checked by the Resident Engineers as part of the construction supervision.

- Prepare inputs to the QPR and the Semi-Annual Safeguards Monitoring Reports to be prepared by PMO. These will include summaries of the Contractor's monthly reports and any issues registered through the GRM.
- Coordinate all safeguards requirements with the Contractor to ensure measures are taken to complete the civil works in an efficient manner and;
- Support, as required, the facilitation of resolution of complaints and grievances through local mediation processes and as per the established GRM.
- Assist the PMO safeguards officer in consulting affected persons and key stakeholders during project implementation to ensure their satisfaction on safeguards implementation.

b. Social safeguards specialist (1 international environment and social safeguards specialist, and one national social safeguards specialist)

- In coordination with the Environment Specialists and Community Specialist, prepare the Communications and Consultation Plan including the GRM for the Project.
- Consult with affected persons and key stakeholders during project implementation to ensure their satisfaction with safeguards implementation.
- Supervise, monitor and assess safeguards compliance according to the approved Land Acquisition and Resettlement Plan (LARP) and recommend corrective actions where needed in collaboration with PMO Safeguards office.
- Coordinate safeguards requirements with the Contractor to ensure measures are taken to complete the civil works in an efficient manner.
- Report on the implementation of the LARP by preparing inputs to QPRs and Semi-Annual Monitoring Reports on social safeguards;
- Monitor the Contractor's works and operations to avoid any safeguards issues and mitigate any unanticipated impacts.
- Coordinate and monitor STI and HIV/AIDS awareness and prevention programs arranged by the Contractor.

26. **Road Safety Specialist** (1 № international, 44 person-months; 2 № national, 44 person-months each).

27. The tasks of the Road Safety Specialist will be as follows:

- a. Review and approve the Contractor's schedule of road safety improvement works.
- b. Monitor and coordinate the road safety improvement works to be completed by the Contractor.

**OUTLINE TERMS OF REFERENCE FOR  
CONSULTING SERVICES FOR CONSTRUCTION SUPERVISION OF  
CIVIL WORKS ROAD CONTRACT 2 (CW-2)**

**I. INTRODUCTION**

1. The civil works to be undertaken under Tranche 1 will be executed under three major civil works contracts:

- Civil Works Contract 1 (“**CW-1**”), for the repair and maintenance of the Highlands Highway between Lae Nadzab and the Henganofi Bridge (210 km). These works are scoped for financing under three tranches of the MMF, with completion scheduled within ten years of commencement.
- Civil Works Contract 2 (“**CW-2**”), for the repair and maintenance of two sections of the Highlands Highway, the first between the Henganofi Bridge and Magiro Bridge, and the second between the Miunde Bridge and Mt Hagen Kagamuga (total 161 km). These works are scoped for financing under three tranches of the MMF, with completion scheduled within ten years of commencement.
- Rehabilitation Investment Contract (“**RIC**”) for the rehabilitation of the section of the Highlands Highway between Magiro Bridge and Miunde Bridge (57 km). As sections of this road are rehabilitated and taken over, their maintenance will become the responsibility of the CW-2 contractor. These works are scoped for financing under Tranche 2 of the MFF, with completion scheduled within four years of commencement.

2. The Supervision Consultant will provide the following three distinct and autonomous teams under the overall management of the Chief Resident Engineer / Team Leader:

- CW-2 Supervision Team
- RIC Supervision Team
- Goroka Bypass Study Team

3. The scope of work and TOR for the CW-2 Supervision Team are as specified in the TOR for the supervision of CW-1 (*mutatis mutandis*), save the following:

- The road forming the scope of the CW-2 contract is shorter than the section under the CW contract and, accordingly, the team is smaller and person-months are less.
- The provision relating to coordination in Paragraph 14 of the CW-1 TOR does not apply to the RIC Supervision Team as the RIC contract does not include any performance-based activities.

**II. CONSTRUCTION SUPERVISION TEAM**

4. The contract for the Supervision Consultant involves an estimated 1,803 person-months (610 international, 1,193 national) of consulting services for the supervision of the road rehabilitation, repair and maintenance work, the strengthening of the safeguards capacity of DOW and the provision of other services specified in this Terms of Reference. The consulting services will be procured using the Quality and Cost Based System (QCBS) (90-10).

5. The Consultant's team shall include the key experts listed in the table below. An inclusive listing of their tasks is provided in the text following the table.

<b>Position</b>	<b>Number</b>	<b>Total Person-months</b>
Chief Resident Engineer (International)	1	44
<b>CW-2 Supervision Team</b>		
<b>International</b>		
Resident Engineer	2	88
Materials/Quality Engineer	1	44
Cost/Quantity Engineer	2	88
Safeguards Specialist	1	44
Road Safety Specialist	1	44
<b>National</b>		
Senior Supervision Engineer	1	44
Site Engineer	3	132
Materials Engineer	3	132
Surveyor	3	132
Environment Safeguards Specialist	2	88
Social Safeguards Specialist	2	88
Road Safety Specialist	2	88
<b>Sub-Total</b>	<b>23</b>	<b>1,012</b>
<b>RIC Supervision Team</b>		
<b>International</b>		
Resident Engineer	1	44
Materials/Quality Engineer	1	44
Cost/Quantity Engineer	1	44
Safeguards Specialist	1	44
Road Safety Specialist	1	44
<b>National</b>		
Senior Supervision Engineer	1	44
Site Engineer	2	88
Materials Engineer	2	88
Surveyor	2	88
Environment Safeguards Specialist	1	44
Social Safeguards Specialist	1	44
Road Safety Specialist	1	44
<b>Sub-Total</b>	<b>15</b>	<b>660</b>
<b>Goroka Bypass Study Team</b>		
<b>International</b>		
Senior Highway Engineer	1	12
Hydrologist	1	3
Geotechnical Engineer	1	2
Traffic Specialist	1	2
Bridge Engineer	1	2
Social Safeguards Specialist	1	6
Environmental Specialist	1	2
GIS Specialist	1	6
Economist	1	3

<b>Position</b>	<b>Number</b>	<b>Total Person-months</b>
<b>National</b>		
Topographical Specialist	9	9
Site Engineer	12	12
Environment Specialist	2	2
Social Safeguards Specialist	2	18
Geotechnical Engineer	4	4
Traffic Agent	4	4
<b>Sub-Total</b>	<b>58</b>	<b>87</b>
<b>Total International</b>	<b>22</b>	<b>610</b>
<b>Total National</b>	<b>39</b>	<b>1,193</b>
<b>Cost estimates (\$)</b>		



**OUTLINE TERMS OF REFERENCE FOR  
CONSULTING SERVICES FOR FEASIBILITY STUDY AND DETAILED DESIGN OF  
BRIDGE IMPROVEMENTS FOR THE HIGHLANDS HIGHWAY  
(BRIDGE IMPROVEMENT CONSULTANT)**

**I. INTRODUCTION**

1. The Department of Works (DOW), Government of Papua New Guinea is implementing a number of highway projects funded by the Asian Development Bank (ADB) which involve design, rehabilitation and reconstruction of sections of highways. The Highlands Highway is a critical link in PNG's road network. It carries the bulk of traffic in the region from the hinterlands to the nation's most active port at Lae. The Sustainable Highlands Highway Investment Program (SHHIP) will repair, rehabilitate, upgrade and maintain the core 430 km section of Highlands Highway between Nadzab airport (Lae) to Kagamuga airport (Mt. Hagen). DOW will be the Executing Agency for the Project. Investment in SHHIP will be divided into three overlapping tranches over a ten year period.

2. Among the civil works to be undertaken is a program of widening and strengthening of a number of bridges along the Highlands Highway. Construction works for this Bridge Improvement Program will be funded under Tranche 2, but preparatory works, including a feasibility study, detailed design and procurement of a civil contractor, will occur under Tranche 1. Accordingly, DOW is now seeking to engage a firm of international consultants (the "**Bridge Improvement Consultant**") to undertake these preparatory works.

**II. SCOPE OF WORK**

3. The main responsibilities of the Bridge Improvement Consultant are:

- (i) Evaluate the feasibility of the proposed improvements to the bridges of the Highlands Highway;
- (ii) Prepare detailed designs of the proposed works;
- (iii) Draft bidding documents for their implementation and assist DOW with the tendering of the works;
- (iii) Evaluate bids received, post-qualify bidders, prepare a Technical Evaluation Report, and assist DOW in negotiating a contract with the preferred bidder; and
- (iv) Provide the other services specified in this Terms of Reference.

**III. FEASIBILITY STUDY TEAM**

4. The contract for the Bridge Improvement Consultant involves an estimated 90 person-months (40 international, 50 national) of consulting services for evaluating the feasibility of the proposed bridge improvements, preparing detailed designs and bidding documents for their implementation, and the provision of other services specified in this Terms of Reference. The consulting services will be procured using the Quality and Cost Based System (QCBS) (90-10).

5. The Consultant's team shall include the key specialists listed in the table below. An inclusive listing of their tasks is provided in the text following the table.

<b>Bridge Improvement Consultant Team</b>		
<b>International</b>		
Team Leader / Senior Bridge Engineer	1	8
Bridge Engineer	1	6
Surveyor / GIS Specialist	1	6
Traffic Engineer	1	3
Geotechnical Engineer / Engineering Geologist	1	6
Hydrologist	1	2
Social Safeguards / Resettlement Specialist	1	4
Environmental Specialist	1	1
Procurement Specialist	1	2
Economic & Financial Specialist	1	2
<b>National</b>		
Civil Engineer (Roads)	1	8
Surveyor	1	8
Topographical Specialist	1	8
Materials Engineer	1	4
Geotechnical Engineer	1	8
Procurement Specialist	1	3
Environment Specialist	1	4
Social Safeguards / Gender Specialist	1	7
<b>Total International</b>	<b>10</b>	<b>40</b>
<b>Total National</b>	<b>8</b>	<b>50</b>
<b>TOTAL</b>	<b>18</b>	<b>90</b>

**Team Leader / Senior Bridge Engineer** (International, 8 person-months). The international team leader will have a minimum of 15 years demonstrated experience in design and implementation of road projects, including in developing countries. The team leader will be responsible for managing Team 3 and coordinating overall implementation of the Feasibility Study. This will include responsibility for reporting activities and liaison with stakeholders. The team leader will be supported by the national civil engineer. (5 person-months). The team leader will conduct the following:

- a. Prepare a detailed work program and implementation schedule for the feasibility study, detailed design work and procurement support, and coordinate the work of the team.
- b. Review background data and, in consultation with relevant specialists, outline the scopes of traffic studies, field surveys, hydrological data collection, geotechnical investigations, and materials testing programs.
- c. Review the traffic data and the traffic forecasts prepared by the Traffic Engineer;
- d. Finalize design standards for the bridge works and prepare optimal feasibility designs and cost estimates.

- e. Oversee the field investigations of the identified alignments;
- f. Coordinate feasibility designs for each of the bridges in the scope of work and oversee the preparation of cost estimates, economic evaluations, safeguards assessments, etc.;
- g. Conduct a risk assessment of the works and propose mitigation measures.
- h. Prepare detailed designs and specifications for the viable bridge improvements.
- i. Review bidding documents and assist DOW with the procurement of a contractor to construct the works.
- j. Review the impact assessments and environmental and social management plans prepared by the team's safeguards specialists and facilitate proposed stakeholder consultation activities.
- k. Coordinate preparation of the deliverables, including inception report, draft and final feasibility design reports, bidding documents and Technical Evaluation Report.

**Bridge Engineer** (International, 8 person-months; National, 8 person-months). The bridge engineer will undertake the following:

- a. Develop preliminary designs of the bridge improvements and costings for each.
- b. In consultation with the Team Leader and relevant specialists, outline the scopes of traffic studies, field surveys, hydrological data collection, geotechnical investigations, and materials testing programs.
- c. In consultation with the Geotechnical Engineer and Materials Engineer, identify sources of construction materials, including fills for base courses and concrete aggregates.
- d. Prepare feasibility level designs, cost estimate and construction schedule for the viable bridge improvements.
- e. Prepare detailed designs and specifications for the viable bridge improvements.
- f. Contribute to reports and undertake other related tasks, as instructed by the Team Leader.

**Surveyor / GIS Specialist** (International, 6 person-months; National 8 months) The Surveyor / GIS Specialist will have advanced training in mapping and GIS and academic qualifications in computer technology, geography, engineering or environmental science. He/she will undertake the following:

- a. Produce topographical maps of the bridge sites with 1m contour intervals.
- b. Establish datum points for the survey control network at different location within the study area.
- c. In consultation with the Team Leader and other specialists, perform detailed survey and mapping of bridges under consideration for improvement. All maps will use the standard datum in PNG and projection system (Transverse Mercator) in accordance with national standards.
- d. Gather data from Geographic Information System (GIS) databases, remote sensing and other sources and generate maps and drawings showing topography, vegetation,

population, land use, and other surface features and characteristics of the terrain in the vicinity of the bridges under consideration.

- e. Support the Team Leader and other specialists with survey input as requested.
- f. Prepare a survey report with drawings and maps as appropriate, and with recommendations concerning the need for further survey work during the detailed design stage.

**Traffic Engineer** (International, 3 person-months). The Traffic Engineer will be responsible for providing traffic management and road safety inputs into the design of the bridge improvements and associated upgrades to the local road network. The Traffic Engineer's responsibilities will include:

- a. Assemble and review available information on the traffic patterns and trends for the Highlands Highway in the vicinity of the proposed bridge improvements. Review the congestion and collision data for the past five years.
- b. Conduct all necessary traffic surveys and investigations and prepare traffic forecasts for the purposes of designing the bridge improvement works.
- c. Prepare a Traffic Impact Study to examine the likely benefits of the proposed bridge improvements.
- d. Identify potential safety or operational issues associated with merging, corner clearances, sight distances, vehicle/pedestrian conflicts, heavy truck conflicts, etc.
- e. Contribute costings of access points, traffic management and safety proposals to the Team Leader for inclusion in the overall cost estimate of the bypass. Draft relevant sections of the feasibility study report.

**Geotechnical Engineer / Engineering Geologist** (International, 4 person-months, National, 4 person months). The Geotechnical Engineer will be responsible for geotechnical investigations and design input for the bypass. Responsibilities will include:

- a. Review regional geological mapping, collect background geological and geotechnical data and review available data from the design and construction of the original bridges.
- b. Prepare and supervise field investigations to assess the geotechnical and geophysical conditions in the locations of the proposed bridge improvements. The Geotechnical Engineer, in consultation with the Materials Engineer, will prepare terms of reference and engage a local company to carry out sub-surface field investigations and supervise its work. Seismic refraction measurements will be used to provide a continuous assessment of the depth of overburden and rock quality.
- c. Determine the geology and ground conditions at the bridges under consideration for improvement. Prepare geological maps for the bridge locations and at an appropriate scale for assessment of slope stability, fault crush zone, etc. in problem areas.
- d. Conduct a seismological investigation to determine seismic design criteria.
- e. Review results of the site investigation work and oversee the in situ and laboratory testing of materials.

- f. In conjunction with the Hydrologist, investigate the possibility of channel scour and erosion during and after the construction phase due to the road, and propose mitigation measures.
- g. Locate potential quarry sites and borrows for sourcing construction materials, including base materials, concrete aggregates and pavement materials, and identify spoil areas. Measures to mitigate the environmental impacts of to the quarries and borrows will be proposed.
- h. Prepare geotechnical sections of the technical specifications for inclusion in bidding documents.
- i. Prepare geological and geotechnical reports with tables, maps and graphs, and recommendations on geotechnical criteria and inputs to the bridge design.

**Hydrologist** (International, 2 person-months). The Hydrologist will conduct the following:

- a. Review hydrological studies and databases relevant to the sites of the bridges under consideration and assess the sufficiency and quality of the of existing hydrological data.
- b. Visit instrumentation sites to assess catchment characteristics and evaluate the condition and siting of the climate and streamflow monitoring equipment;
- c. Analyze hydrological data collected from the sites to feasibility standards, including rainfall and streamflow data;
- d. Using available streamflow and rainfall data, (i) prepare estimates of rainfall intensity and frequency for the design of road drainage works, and (ii) analyze streamflows and estimate flood frequencies and flood levels in the rivers and watercourses of the area for use in the design of the bridges and the culverts, road formation, flood protection structures, and erosion protection works in the approaches to the bridges.
- e. Perform an assessment of hydrological risks including intense rainfall and flooding.
- f. Undertake an analysis of the impacts of projected climate change undertake an analysis of the impacts of projected climate change
- g. Prepare hydrological reports with tables, maps and graphs, giving recommendations on hydrological criteria and inputs to the road design.

**Economic & Financial Specialist** (international, 2 person-months). The specialist will be experienced in ADB financial and economic analysis procedures and will undertake the following,

- a. Assemble and review current economic and financial data and determine applicable macroeconomic parameters. Calculate the weighted average cost of capital (WACC) under the proposed SHHIP financing structure.
- b. In consultation with other specialists, prepare a comprehensive cost estimate and carry out a feasibility-level economic and financial evaluation for each of the proposed bridge improvement works including calculation of the financial internal rate of return (FIRR) and economic internal rate of return (EIRR) in accordance with ADB guidelines. Incorporate into the economic analysis the economic quantification of environmental impact caused by the bypass following the methodology set out in the

ADB's *Economic Valuation of Environmental Impacts: A Workbook* (1996), and *Environmental Assessment Guidelines* (2003). Highlight any of the proposed improvement works that are not viable.

- c. Identify key financial project risks and analyse likely economic uncertainties that could affect the project's viability. Undertake a risk and sensitivity analysis in accordance with ADB's *Handbook for Integrating Risk Analysis in the Economic Analysis of Projects* to determine the impact on project performance of plausible adverse assumptions relating to these risks. Outline practical strategies and approaches to mitigate the risks.

**Procurement Specialist** (International, 2 person-months; national, 3 person-months)  
The specialist will be experienced in procurement under ADB procedures using ADB standard bidding documents. The Specialist will undertake the following:

- a. Review the feasibility work of the bridge improvements and determine an optimal procurement plan for the implementation of the works that considers market appeal, administrative burden and contracting risks.
- b. Assist the Team Leader and Bridge Engineer with the preparation of the bills of quantities, cost estimates and implementation schedules.
- c. Assist with the Team Leader and Bridge Engineer with the preparation of the bidding documents for the works based on ADB standard bidding documents and complying with ADB's Procurement Guidelines.
- d. Assist DOW and the team's specialists during the bidding of the works and the evaluation of bids received.

**Environmental Specialist** (International, 1 person-month; National, 4 person-months).  
The international environmental specialist will undertake the following:

- a. Collect baseline data to assess environmental impacts. Collected data must be gender disaggregated whenever applicable and appropriate.
- b. In conjunction with the PMO and the Social Safeguards Specialists, conduct surveys and group discussions, including interviews with stakeholders and local people.
- c. Based on the available information, identify environmental benefits and negative impacts likely to result from the implementation of the bridge improvements. Prepare an initial environment evaluation (IEE) covering all of the proposed improvements, and identifying the impacts of each. Assist the Team Leader and other specialists by proposing refinements in the alignments to avoid or mitigate impacts. Determine whether the impacts of the proposed program are likely to be significant.
- d. Provide input into the feasibility design of the proposed bridge improvement works, proposing measures to minimize land acquisition, protect natural landscape and vegetation, safeguard fauna and prevent erosion during construction and operation.
- e. Evaluate impacts and prepare an environmental impact assessment (EIA) in compliance with ADB Safeguard Policy Statement 2009 and the Conservation and Environment Protection Authority Act 2014, Environment Act 2000 and other applicable laws and regulations. The EIA will classify the likely impacts of the construction activities, as well as the long-term impacts during operation.

Compensation and mitigation measures will be identified in accordance with national and international standards.

- f. Outline appropriate environmental mitigation measures for the identified impacts, and prepare an environmental management plan and recommend monitoring plans, soil conservation actions and rehabilitation measures. Estimate the costs associated with the implementation of the management plan.

**Social and Resettlement Specialist.** (International, 4 person-months; National, 7 person-months). The international Social and Resettlement Specialist will undertake the following:

- a. Review existing information and collect baseline social data to assess the social impacts associated with the alternative alignments of the bypass. Collected data must be gender disaggregated whenever applicable and appropriate.
- b. In conjunction with the PMO and the Environment Specialists, conduct and document surveys, group discussions and interviews with stakeholders and local people.
- c. Identify localized social and environmental benefits and negative impacts likely to result from the construction and operation of the bridge improvements.
- d. Based on the available information, prepare the Initial ESIA based on the feasibility designs and determine if the impacts of the proposed bridge improvement works are likely to be significant.
- e. Provide input into the detailed design of the bridge improvement works based on the preferred alignment, proposing measures to avoid or minimize resettlement and social impacts during construction and operation. Propose measures to mitigate negative impacts.
- f. Guide the preparation of and ensure quality assurance for the following: (i) social impact assessment, including gender analysis; (ii) Land Acquisition and Resettlement Plan (LARP), Community Development Plan (CDP), as required, and (iii) Indigenous People's Plan (IPP), as required, to meet the ADB's social safeguards requirements
- g. Identify compensation and mitigation measures according to national and international standard.

APPENDIX 2: TIMELINE FOR MAJOR SAFEGUARDS ACTIVITIES

STAGES OF PROJECT PREPARATION	Works selection	Draft PFR with draft IEE and RP	Fact-Finding mission	ADB management meeting	CSRN/Pre-bidding	ADB approval / Contract award	Contractor mobilization	During construction
<b>RESETTLEMENT</b>								
<b>I. Road Selection and Preparation of Resettlement Plans</b>								
a. Confirmation that the proposed works cause <b>no significant displacement</b> of residential structures or other permanent structures (not more than 200 or more persons will experience major impacts, which are defined as (i) being physically displaced from housing, or (ii) losing 10% or more of their productive (income generating) assets).								
b. Confirmation that the candidate road is on State-owned land (as per the Land Act), or there is a <b>negotiated agreement (MOA)</b> with affected communities and landowners to use customary land. MOAs to also identify assets to be potentially removed and therefore compensated.								
c. Conduct social impact assessment in candidate roads to gather initial socio-economic baseline information of affected persons and nature and magnitude of land acquisition impact, if any, and confirmation if there are vulnerable groups which will be affected. Extensive consultation with affected persons and key stakeholders undertaken.								
d. Preparation of land acquisition and resettlement plan according to the approved resettlement framework. When third party validation <sup>1</sup> has been undertaken should be included in the resettlement plan.								
e. Government’s disclosure of resettlement plans to affected persons and general public.								
f. ADB posting of government-endorsed resettlement plan on its website prior to management meeting.								
<b>II. Update Resettlement Plans (LARPs)</b>								
a. If applicable, set cut-off date and disseminate to project areas (normally determined by the Government’s existing procedure but could alternatively the date of the completion of census or DMS)								
b. Conduct <b>DMS based on detailed engineering design</b> and demarcation of land to be acquired. Conduct census and inventory of assets. Additional social impact assessment if there are unanticipated impacts.								
c. <b>Third-party validation</b> , where necessary, completed for use of customary land negotiated through a MOA with the community leaders and affected landowners; report submitted to ADB.								
d. Revise/update the resettlement plan including revision of resettlement budget based on status of livelihood restoration activities and validation of the plan and actual compensation.								
e. Present updated LARPs to APs and other stakeholders in a public meeting.								
f. Government-endorsed LARPs cleared by ADB and disclosed on ADB website.								
<b>III. LARP Implementation</b>								
a. <b>Recruitment</b> of (i) <b>supervision consultants</b> including safeguards specialists to support DOW, provincial/local governments, and the contractors in the finalization and implementation of various safeguards documents and plans, (ii) <b>IMO</b> to conduct external monitoring, and (iii) <b>third-party validator</b> .								
b. <b>Pay compensation</b> to all eligible economically and physically displaced persons, including provision of in-kind compensation (e.g. community works) before clearance of land and start of civil works. With consent from								



ACTIVITIES TO COMPLETE	STAGES OF PROJECT PREPARATION							
	Works selection	Draft PFR with draft IEE and RP	Fact-Finding mission	ADB management meeting	CSR/Pre-bidding	ADB approval / Contract award	Contractor mobilization	During construction
landowners, contractor mobilization may occur in cases of partial payment of the subproject but no works may begin on unpaid sections of that subproject. Must not begin until IMO is recruited.								
c. Establish a comprehensive income and livelihood restoration program in accordance with the LARP and implement during construction or earlier								
d. Internal monitoring of all activities associated with land acquisition and compensation payment to APs.								
e. IMO oversees resettlement process (i.e. payments, third-party validation and internal monitoring) and outcomes (i.e. whether APs have been able to restore, and preferably improve their pre-project living standards, incomes, and productive capacity, identify corrective measures required).								
f. Qualified APs given priority for employment by contractors for civil works and/or maintenance works.								
g. Coordinate safeguards requirements with civil works contractors to ensure measures are taken to complete the civil works in an efficient manner.								
<b>ENVIRONMENT</b>								
<b>I. Selection</b>								
a. Confirmation that the candidate road and the works to upgrade, rehabilitate and maintain do not endanger or provide access to <b>at-risk fauna or flora</b> ; supported by site specific studies, maps etc.								
b. Confirmation that the candidate road and the works to upgrade, rehabilitate and maintain have <b>no other significant adverse environmental impacts</b> .								
<b>II. Preparation</b>								
a. <b>IEE prepared</b> for each subproject each including a <i>site-specific EMP</i> for mitigating measures to avoid or reduce impacts of proposed works.								
b. IEEs cleared by ADB and DOW-EMU. Verify no clearances required from CEPA. Disclose IEEs on ADB website.								
<b>III. Pre-construction</b>								
a. <b>Recruit supervision consultants</b> including safeguards specialists that are providing support to DOW, provincial/local governments, and the contractors in the finalization and implementation of various safeguards documents and plans.								
b. <b>EMP from approved IEE</b> is updated by supervision consultants, as required, and integrated into civil works construction contracts. EMP section of contracts to incorporate the general environmental safeguards and practices, modified specific to each subproject to ensure that all special or particular safeguard requirements and mitigation measures, recommended in the EMP provisions based on detailed design, are incorporated within the contract of each subproject.								
c. HRMG or the supervision consultants provide the contractor with induction training on environmental management.								

STAGES OF PROJECT PREPARATION	Works selection	Draft PFR with draft IEE and RP	Fact-Finding mission	ADB management meeting	CSR/Pre-bidding	ADB approval / Contract award	Contractor mobilization	During construction
d. <b>Contractor prepares CEMP</b> including mitigation and monitoring measures stipulated in the contract (as adapted from the IEE/EMP).								
e. HRMG and the supervision consultants review and approve the contractor's CEMP.								
f. Additional assessments undertaken, as required, to support application for <b>environmental permits</b> obtained from the CEPA, including permits and clearances for any quarry development or materials extraction, etc.								
<b>IV. Construction</b>								
a. Contractor strictly <b>implements the approved CEMP</b> , including any quarry management plans and employs the best engineering practices in the works to eliminate or adequately mitigate the adverse impacts that will accrue from the implementation of the works.								
b. Contractor includes compliance with CEMP in monthly reports.								
c. Supervision consultants and DOW undertake <b>internal monitoring</b> (every 2 months) and include reports in quarterly progress reports from supervision consultants to ADB and DOW. Semi-annual safeguards monitoring reports submitted and disclosed on ADB website.								

= hard deadline for completion

Note: <sup>1</sup>Third-party validation: verify that the donation is in fact voluntary and did not result from coercion, using verbal and written records and confirmation through consultations by an independent third party such as a designated nongovernmental organization or legal authority. The third-party validator is not the IMO.

AP = affected person; CEMP = construction EMP; CEPA = Conservation Environment Protection Authority; DEC = Department of Environment and Conservation; DMS = Detailed measurement survey; DOW-EMU= DOW environment management unit; EMP = environment management plan; HRMG = Highlands Road Management Group; IEE = initial environmental examination; IMO = independent monitoring organization; MOA = Memorandum of Agreement; RF = resettlement framework; RP = resettlement plan

Sources: HRRIP Project 2 – Resettlement Framework and Environmental Assessment and Review Framework and Loan Agreement

## APPENDIX 3: SAFEGUARDS MONITORING CHECKLISTS

### Checklist for Safeguard Supervision/Monitoring (Environment)

PARD Safeguards Implementation Checklist: Environment					
Date: _____					
<b>PROJECT INFORMATION</b>					
Loan/Grant No.: _____		Project Name: _____			
Approval Date: _____		Closing Date: _____		Cumulative Progress (%): _____	
Project Team Leader(s): _____				Implementing Agency: _____	
<b>1) Categorization</b>					
(Original)		A	<input type="checkbox"/>	B	<input type="checkbox"/>
(additional financing, if any)		A	<input type="checkbox"/>	B	<input type="checkbox"/>
		C	<input type="checkbox"/>	FI	<input type="checkbox"/>
		C	<input type="checkbox"/>	FI	<input type="checkbox"/>
<i>(Please complete the following sections if the project has been categorized as A, B or FI)</i>					
<b>2) Planning</b>					
Documents:		EARF	<input type="checkbox"/>	IEE/EIA	No. of IEE/EIA _____
IEE/EIA Disclosed and Posted on ADB Website:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
EMP Finalized or Updated after Detailed Design:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
CEMP submitted, reviewed and approved:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
(Attach a list of subprojects and status if necessary.)					
<b>3) Institutional Setup</b>					
PIU/PMU Environment Staff Assigned:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If yes, Name: _____				Since: _____ / _____	
				(month)	(year)
Environmental Specialist/Consultant Mobilized:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If yes, National Specialist's Name: _____				Since: _____ / _____	
				(month)	(year)
If yes, International Specialist's Name: _____				Since: _____ / _____	
Participation of Gov. Environment Agency/Division:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If yes, Name: _____				Since: _____ / _____	
				(month)	(year)
Grievance Redress Mechanism Established:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If no, why? _____					
Allocation of Government Budget:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If yes, amount\$: _____					
<b>4) Monitoring and Reports</b>					
Internal Monitoring System Established:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Compliance monitoring incorp. into Q Progress Reports:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
External Monitor Engaged (if needed):		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If yes, Name: _____				Since: _____ / _____	
				(month)	(year)
Monitoring Report Submitted to ADB:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
If Yes, provide information below					
	<b>Baseline Report</b>	<b>Report 1</b>	<b>Report 2</b>	<b>Report 3</b>	<b>Report 4</b>
Submission Date (m/yr)					
ADB Review Date (m/yr)					
Web-posting Date (m/yr)					
Name of ADB Reviewer					
<b>5) Field Review with Participation of Safeguard Specialist/Officer/Staff Consultant</b>					
		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
		If no, actions? _____			
If Yes, provide information below					
Mission Date (m/yr)					
Type of mission:					
Participants (safeguard specialist/officer/staff consultants)					



### Suggested Outline of Quarterly Monitoring Report – Environment

Heading/Section	Contents
Introduction	Brief background on the project and subproject; Institutional arrangements for project management and environmental management;
Monitoring Activities	Who participated in the monitoring; Methodology for monitoring (whether checklists prepared etc); When the monitoring was undertaken and what period it covers; Summary of other monitoring undertaken in the period (i.e. form contractor's monthly reports and if any survey/sample monitoring undertaken); Main activities – observations/inspections, consultations, interviews with contractor staff etc
Works in Progress	Details of the works being undertaken, (with photographs); Include whether any environmental training/awareness has been provided to contractor staff in the period (what, by whom etc)
Monitoring Results and Actions Required	Whether works and measures comply with the approved EMP/CEMP; Should follow sequence of items identified in EMP/CEMP and verify that all mitigations measures noted are being implemented; Corrective actions cited (date to be resolved and person responsible on contractor team and verification by IA/HRMG)
Summary and Conclusions	Summary of main findings; Main issues identified and corrective actions noted; Can include summary table which can be updated each period to track completion of actions required
Attachments	Monitoring checklist (based on items identified in the EMP/CEMP) refer annex 1 Additional photographs Additional information as required

## Checklist for Safeguard Supervision: Involuntary Resettlement

### PROJECT INFORMATION

Loan/Grant No.:	Project Name:
Approval Date:	Closing Date:
Cumulative Progress (%):	
Project Team Leader(s):	

**1) Resettlement Categorization**

(Original)	A	<input type="checkbox"/>	B	<input type="checkbox"/>	C	<input type="checkbox"/>	FI	<input type="checkbox"/>
(additional financing, if any)	A	<input type="checkbox"/>	B	<input type="checkbox"/>	C	<input type="checkbox"/>	FI	<input type="checkbox"/>

*(Please complete the following sections if the project has been categorized as A, B or FI involving land acquisition/resettlement issues)*

**2) Resettlement Planning**

Resettlement Planning Documents:	RF	<input type="checkbox"/>	RP	<input type="checkbox"/>	Number of RPs _____	ESMS	<input type="checkbox"/>
RP Finalized or Updated after Detailed Design: (Attach a list of subprojects and status if necessary.)	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If no, actions?		
Final/Updated RP Cleared by ADB and Posted on ADB Website	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If no, actions?		
Compensation Rate Approved by the Govt:	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If no, actions?		

**3) Institutional Setup for Resettlement**

PIU/PMU Resettlement Staff Assigned:	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If no, actions?	
	If yes, Name: _____			Since: _____ / _____ (month) (year)		
Resettlement Specialist Consultant Mobilized:	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If no, actions?	
	If yes, Name: _____			Since: _____ / _____ (month) (year)		
Grievance Redress Mechanism Established:	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If no, why?	
Allocation of Government Budget:	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If no, actions?	
	If yes, amount\$: _____					

**4) Resettlement Monitoring and Reports**

Internal Monitoring System Established:	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If no, actions?	
External Monitor Engaged (if needed):	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If no, actions?	
	If yes, Name: _____			Since: _____ / _____ (month) (year)		
Monitoring Report Submitted to ADB:	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	If no, actions?	
	If Yes, provide information below					
	<b>Baseline Report</b>	<b>Report 1</b>	<b>Report 2</b>	<b>Report 3</b>	<b>Report 4</b>	
Submission Date (m/yr)						
ADB Review Date (m/yr)						
Web-posting Date (m/yr)						

5) Compliance with Loan Covenants			
List of key covenants in loan and project agreement			
Item #	Covenant	Compliance rating*	Describe status of compliance
*Note: Yes ; No; Not yet due			
6) Status of Implementation of Resettlement Activities (Please provide a cross reference if it is already covered under Section 5 above)			
	Items	Yes/No	Describe Implementation Status
1	<b>Satisfactory Consultation:</b> clear responsibility; identification of stakeholders; consultations		
2	<b>Information of APs:</b> database/inventory		
3	<b>Land Acquisition:</b> Notification, survey, approvals		
4	<b>Payment of compensation</b> and allowances		
5	<b>Relocation of affected assets and structures</b>		
6	<b>Rehabilitation</b> income generation, employment		
7	.....		
7) Major Resettlement Issues or Complaints (Cumulative)			
	Item	Description	
1	Issue		
	Proposed Action(s)		
	Follow-up Issues/Actions		
	Final Resolution of Issue		
2	Issue		
	Proposed Action(s)		
	Follow-up Issues/Actions		
	Final Resolution of Issue		
ESMS = environmental and social management system; FI = financial intermediary; MTR = mid-term review; PCR = project completion review; PAU = Project Administration Unit; PIU/PMU = project implementation/management unit; TL = team leader; RP = resettlement plan; RF = resettlement framework; SS = safeguard specialist			

## Suggested Contents of Resettlement Monitoring Report

Heading/Section	Contents
Introduction	<p>Brief background on the project/subproject and progress status</p> <p>The project's category and planning documents (original, updated or new plans) on resettlement impacts</p> <p>Institutional arrangements and budget allocation for resettlement/social management;</p> <p>Arrangement for the monitoring</p>
Monitoring Activities	<p>Methodology for monitoring (whether checklists prepared etc);</p> <p>What period the monitoring covers</p> <p>Main activities – site visits, consultations, survey etc</p>
Monitoring Results and Actions Required	<p>Progress and performance in implementation of LARPs and other programs (how their were implemented, what are the outputs, etc)</p> <p>Results on consultations, disclosure and grievance redress (whether they have been effective, level of satisfaction of APs with various aspects of the RP, public awareness of the compensation policy and entitlements will be assessed among APs.)</p> <p>Whether the implementation comply with the approved RPs (e.g. whether compensation rates were at replacement cost, full payment made to all APs sufficiently before land acquisition; prompt attention to unforeseen damages or losses, to ensure APs are fully compensated for losses)</p> <p>Results on outcome (whether APs were able to restore livelihoods and productive activities)</p> <p>Compliance on monitoring and disclosure (whether reports have been submitted, posted on website)</p> <p>Whether any issues and corrective measures identified to achieve the RP objective. If yes, actions with target dates and responsible agency/person)</p> <p>Follow-up item/plan for next report</p>
Summary and Conclusions	<p>Summary of main findings;</p> <p>Main issues identified and corrective actions noted;</p> <p>A table on follow-up action which can be updated each period to track completion of actions required including progress of the follow-up of problems and issues identified in the previous report</p>
Attachments	<p>Monitoring checklist (based on items identified in the LARPs)</p> <p>Photographs</p> <p>Additional information as required</p>



## SUMMARY DOW CAPACITY ASSESSMENT FOR SHHIP IMPLEMENTATION

1. **Introduction.** The following summarizes an assessment of DOW capacity which predicates key aspects in the design of the SHHIP, particularly as related to Output 4: Institutional capacity of DOW to deliver the investment program and sustain its benefits strengthened.
2. The SHHIP program responds to a government request for assistance in achieving sustainable strengthening of the Highlands Highway. The proposed program structure has been designed to strengthen economic and social factors for the country, and reflects expert assessments and stakeholder advice. In terms of the design, it brings together a package of solutions designed for the implementation of planned civil works by separating semi-autonomous actions from identified capacity gaps.
3. The design process has involved extensive consultations as well as collection and analysis of information to assist capacity assessments, and the aim has been to develop a program that takes a long term perspective for implementation of the Investment Program while also incorporating features that reflect the unique country, institutional and technical characteristics that impact the highlands highways.
4. There are significant issues that impact the design and implementation of the program, firstly as a result of the DOW being the executing agency, and secondly as a result of continuing sectoral issues that impact at the broader level. As part of the expert assessments, the institutional assessment reveals that DOW capacity has developed in the last five years, moving from a service and works delivery mode to outsourcing and contract management, restructuring the organization, strengthening training systems and delivery, and improving procedural compliance. Progress has been made, but there remain gaps.
5. **Managerial Capacity.** In an organization the size of DOW, it would be reasonable to expect the successful use of good-practice management behavior and processes. These should generally revolve around mechanisms for employee supervision, innovation, culture management, fostering talent, acting proactively, employee engagement, ensuring continuous improvement, communicating new expectations, building teamwork, monitoring and ensuring compliance, persistence, resilience, rational change management, and encouraging reforms. Most importantly, there is a need to understand the importance to the country of inclusive and accountable institutional management of public services and expenditure. These mechanisms are not immediately apparent in DOW.
6. It is generally agreed by stakeholders that there is a lack of managerial capacity in DOW below the highest echelons. Any core managerial functions should include planning, controlling, leading, and coordinating, and there are weaknesses in capacity in practicing these standard activities.
7. The current Corporate Planning process and product are exceptions to this generalization, and the envisioned next steps are very appropriate, but local managers participating actively in Plan implementation, monitoring, and reporting remains a challenge.
8. The quality of employee supervision and accountability is particularly problematic for the performance of DOW. Workplace attendance, completion of work requests, meeting of deadlines, lack of monitoring and reporting of technical and administrative activities, and “hidden” resistance

to change management are management issues that have gone unchecked and unchanged for some time.

9. Few DOW supervisors manage staffing problems well, if at all, yet those with supervisory responsibility have the authority and systems of the Public Service to support change management. Such weakness is not uncommon in others areas of the public service and in other countries, but there is ample opportunity and potential benefit from turning this around. One common characteristic in other jurisdictions is an erosion of managerial authority, which is caused by confusing and unnecessary complexity in work practices and user-unfriendly systems. This administrative situation is exacerbated by a counter-culture affecting individual and group dynamics and which protects poor performance. Both of these elements serve to nullify attempts made by strong managers to improve the quality of public services, and both elements are evident in DOW.

10. Some argue that these problems are solved elsewhere by having good work systems. Certainly developing manuals, databases, and technical capacity are important goals for DOW, but these tools are not enough. Even development partner strategies such as training, strong role modelling, and taking over tasks do not always have the level of benefits that they should. Potential benefits from capacity development in technical functions are often not realized when accompanied by poor management systems, low managerial capability, weak supervisory diligence, and ingrained systemic discouragement-factors in operation. Management strengthening is therefore needed through a range of approaches, and this may be argued is a necessary reform pre-condition, such that other interventions may not succeed without it.

11. Performance management systems exist under Department of Personnel Management (DPM) procedures. However, these are often not fully or properly implemented. There are also system design issues making the process tedious and of debatable benefit. Instigating and supporting a performance management program will be a key step in addressing this management capacity issue in DOW. This will allow the executive management to monitor and enforce the role of manager and supervisor, as well as providing a tool for managers and supervisors to commence a proper process of employee management for planning, productivity, engagement, compliance and development.

12. The DPM supports the “Gender Equity and Social Inclusion (GESI) Policy”, a key government policy statement in support of women. The GESI policy supports and assists agencies, officers and employees in principles of respect, equity and diversity. Inclusion and equity initiatives are supported in the workplace and the delivery of goods and services. However, the number and percentage of women employed in DOW is low and there are very few women in senior or technical positions. Clearly there is a weakness in gender mainstreaming in DOW. This is a need to initiate a systematic process in which women and men are equally involved in and integrated into all aspects of the organization’s work.

13. In summary, there is a continuing need to strengthen managerial capacity in DOW.

14. **Technical Capacity:** One of the benefits of development partner support sector-wide has been the strengthening of technical capacity supported by the Transport Sector Support Program (TSSP) funded by Australia. However, there remains significant areas, layers, groups and individuals with inadequate capacity. Further there may be instances of a particular function (e.g. Asset Management) benefitting from development partner support, but this has not yet materialized for interacting functions.

15. The DOW has been attempting to build sufficient independent technical capacity across all functions, notably, skills training and qualifications development for the staff to eventually become capable of the delivery of an increased volume and quality of contracts.

16. As DOW finalizes the move away from undertaking in-house civil works to contracting of civil works, new work practices and competencies are required and in some respects, new staff recruitment would be beneficial. Experience elsewhere demonstrates that not all staff are able to adjust to the necessary changes.

17. There is also a case for maintaining some force account capability following Japan International Cooperation Agency (JICA) funding of civil engineering equipment granted to all DOW provincial branches. There is a case for using this equipment under force account to intervene faster than contractors could or to assist the provincial administrations on provincial and local roads management. However, the rules and regulations for this use, the funding, and the oversight should be clarified and enforced.

18. Technical staff in DOW are being directed more specifically towards delivery of contracted civil works processes and outputs, and increasingly this is being managed better in road maintenance. After a period of slow output, the rollout of maintenance contracts has built momentum with increased numbers of contracts being awarded, with some system and capacity issues being resolved, and with efforts to establish a system of long term performance-based contracts. However, there remains an imbalance in the level of funding provided for road maintenance and a lack of a network management approach. This assessment is detailed in the Linked Document "Maintenance Sustainability Analysis".

19. Maintenance contracts are important for the sector in reducing overall costs in road management but can be labor intensive in development and supervision and a lower priority at political levels. The confused responsibility for road maintenance contracting between NRA and DOW continues (see the Linked Document: Sector Assessment Summary (Transport)), and this impacts the management of maintenance works generally, and limits the potential for increases in the processing speed and improved procedural quality.

20. Development of technical staff is a key issue. There remains a need for on-the-job training for procedural compliance, some specialist post graduate training, and competency development in certain knowledge areas. There should be a continuation of prioritization of skill development in the core areas of project management, planning, programming and budgeting of the outputs, and safeguards management.

21. Development of a DOW competency framework is needed to cover technical (and leadership and core/generic) categories of needed knowledge, skills, attitudes, behaviors and procedures. Mentoring, on-the-job training, and application of competency development tools are needed for some years to come to strengthen technical competence in DOW.

22. **Function Capability:** Organizations are generally structured around functions which bring together common forms of work, knowledge and tools, and therefore, allow for efficient operation. If function boundaries are well-designed, it reduces internal duplication and best focuses activity on the approved organizational direction. Given the new DOW structure, the high-level corporate, operations, and strategic functions should drive DOW in achieving its mandate, and their lower level sub-functions should drive systems and processes.

23. There are a number of sub-functions that are ineffective or weak in compliance, transparency, and work ethic, and so they do not adequately drive DOW forward. However, to be fair, it should be noted that the functions are undergoing change and modernization, and deserve time for development and evolution.

24. There should be continued strengthening and a new drive for accountability for key corporate functions notably financial management, human resource management, and ICT management. The impact that these functions can have on organizational productivity and achievement of planned vision is often underestimated.

25. The Human Resource Management (HRM) function has a generous level of staffing yet does not demonstrate effective achievement of its function. In particular, the strategic level of HRM is inconsequential in organizational impact. The function is divided into HRM and HRD sub-functions and, hence, these are structurally divided from each other. This seems an unnecessary demarcation, but there may be a reasonable rationale for this division. Overall, the HRM processes are slow, manual, unrecorded, and lacking in transparency. There are outdated modes of record-keeping, poor process design/redesign, weak procedural compliance and management, and ineffective information reporting. The failure to implement a useful Human Resource Information System (HRIS), not to mention a system of analytics, suggests lack of support to and weak capacity within the function.

26. Financial management is operationally devolved in provinces, and centrally managed in Headquarters (HQ). The HQ administration and controls involves online access to the IFMS, meaning that they are fully able to operate the system there, but only there. In the provinces there is less capacity where there is no or little online access and where operations are hampered. In provincial and project operations, finance staff use an old and incompatible system or operate manually, which leads to errors and inefficiencies. Financial information is often not reliable as a result of data entry and related errors. There is a need to resolve this issue, and in parallel develop a financial reporting system that supports financial management information dissemination (to improve transparency) and management decision-making (to improve effectiveness and efficiency).

27. The DOW financial and procurement procedures are documented in the PFM Act which effectively sets out all the procedures. This is effective at higher levels in DOW but needs to be further developed and disseminated at unit and projects levels, and a finance manual should be developed for this task.

28. The ICT function impacts little on DOW operations and fails to lead improved communications, information storage, and management reporting.

29. Problems in operations and planning functions reflect weak technical capacity discussed above. There is a need for better quality planning and programming, construction techniques, project management, contract management, project progress reporting, development of documentation that is commensurate with the scale and complexity of the works being undertaken, and development of the capacity and network management skills at regional and provincial levels. The SHHIP will need to be able to manage the civil works for the highland highway unencumbered by capacity issues over five provinces. There will be a need for appointment of international experts and national specialists in a way that adds value with the design and execution of works supervision contracts, for example, avoiding duplication and overlapping of roles, and designers of terms of reference for both are cognizant of this need.

30. Safeguards are managed through the ESSU. This unit has staffing strength in environment safeguards but there is no expertise in social safeguards and a lack of management drive for them to apply their competencies at worksites or in regional offices. The unit already has a strong workload for DOW activity, and so has limited capacity to support the PMO. While some full time or part time deployment to the PMO may be possible and is desirable, there will be a need to supplement their inputs to the SHHIP with international and national consultants.

31. In the past, road safety has been seen as part of technical officers' roles generally rather than as a specialized function, and so was embedded in existing DOW or contractors' structures. Where specialized roles existed, they were generally the responsibility of another agency such as National Road Safety Council (NRSC), now absorbed by Road Transport Authority (RTA), or the Police. The road safety capacity assessment has noted that the DOW should establish a Road Safety Cell in the planning function, and has recommended that this should be staffed with qualified professionals and complemented with modern equipment. However, there will be a need for road safety expertise to be directly available in the PMO.

32. The DOW has demonstrated operational capacity to execute commendable levels of project execution, with the annual expenditure program reaching K1,100 million in 2015 (combined development and maintenance expenditures). However, operational sub-functions are generally in need of ongoing sustainable reform. Provincial staff including Regional Managers, Provincial Works Managers and Provincial Engineers seem to be hindered by HQ-centric systems and yet when the systems do give them latitude they are incapable of taking initiative and acting proactively to resolve issues under their responsibility or to strongly advocate solutions for their province or region in HQ.

33. Functional developments are being well supported through donor funding of projects such as TSSP. SHHIP should not duplicate or complicate this existing area of support.

34. **Workforce Management.** It is arguable that the most serious dysfunctional function in the DOW is in workforce management. Employee productivity and engagement are low. There is a need for various workforce management strategies to be put in place, notably to strengthen managerial practices in support of DOW vision and values, to target staff rationalization consistent with the Corporate Plan, to strengthen workforce planning, customize performance management, to identify weak and needed competencies for individuals, to recruit and retain talented individuals, and to increase targeted competency development. Capacity development targeting senior management is needed.

35. The key to strengthening the DOW will be the strength of DOW management in implementing the Corporate Plan. The DOW mandate and direction are clear in this document but it will be for nothing if no effort is made in implementation. Executive management should be accountable for implementation and be assisted by managers and staff through a plan-based performance management system that is implemented with serious intent.

36. **Additional Capacity Gaps.** Other key capacity issues were identified by the institutional assessment of DOW. Many of these are currently being addressed by other programs and projects, and hence this assessment does not repeat these assessments or descriptions of donor-supported assistance. Obviously duplication should be avoided. In any case, funds for SHHIP are limited, and the best-practice PMO model described above represents a cost-effective approach to addressing the need for civil works to be managed well and for capacity building initiatives to flow directly from this work.

37. However it is appropriate to mention three key capacity gaps identified by this analysis. Firstly there is a need for technical assistance to strengthen workforce management in DOW. Secondly there is a need for strengthened ICT and reporting capacity, which could extend throughout the sector. Thirdly there is a need to support structural reforms for the NRA to reduce duplication with DOW but strengthen their role with the Roads Fund and in maintenance of regional and provincial administrations. Sources beyond

38. The DOW is near completion of structural change processes, and it is timely for an International Workforce Management Specialist (person-months to be determined) to support capacity development for strengthened workforce management. This will include assisting executive management in implementing the new structure fully, in managing the transition for staff not appointed in the new structure, and for developing a competency framework for leadership/managerial, technical, and generic aspects of key roles or job functions in the new structure. The competency framework will be used for planning, designing and implementing merit-based training, promotion and development functions. The Specialist will also support updating the Workforce Development Strategy with data that has been validated. In addition, the Specialist will support management in fully implementing a new easy-to-use staff performance management system that is in accord with public service policy but in addition supports plan implementation, ensures the provision of regular feedback sessions, and promotes effective and efficient development decisions. When possible, the DOW will need to recruit capable and well-trained engineering and other technical specialists which tend to be in short supply, and the Specialist will also establish systems and policies that support workforce planning in these areas.

39. An International Data Management and Reporting Specialist (person-months to be determined) will be required to support the DOW in improved data management in all corporate and strategic planning functions and in report design to meet decision and information needs of managers. The Specialist will establish a reporting framework by management consultations, and work with staff creating, storing, securing, checking and maintaining data in electronic format to ensure that information and reports are provided as required to the relevant managers when needed. The priorities will be in finance, human resource management, training, asset management, land acquisition and compensation payments, policy implementation, plan achievement, and M&E functions.

40. The sector level institutional capacity assessment identified possible developments and consolidations required for improved institutional structure performance within the sector, particularly between DOW and NRA. If nothing else, it is good government practice for institutional roles to be clear and distinct, and to avoid institutional role ambiguity. It has been recommended as part of the capacity assessment to limit the role of the NRA to managing the Road Fund and to limit the Road Fund allocations to road maintenance as currently defined under the NRA Act: "routine, specific and emergency maintenance carried out on a road to keep it in an appropriate condition". This more limited role is consistent with the Objective of the Authority under the NRA Act. Consistent with the role would be an expansion of the role to include the provision of guidelines and consistency in the maintenance of local-level roads with support directed at sub-national level.

41. Further analysis and change management is required. It is therefore proposed that technical assistance be provided to the DOW for an International Road Maintenance Specialist (person-months to be determined) to work with the DOW and NRA in identifying needed change and bringing this about. Advice should be provided to DOW and NRA on mechanisms for supporting institutional structure changes designed to reduce problems of overlap of authority and responsibility between DOW and NRA, and in particular so that over time the NRA is able to cease

its role in operational contract procurement and management and existing contracts are transferred to the DOW. The Specialist will design arrangements so that the NRA Board is supported by a Secretariat assisting the NRA to manage the affairs of the Road Fund and the Board. The Specialist will assist management of DOW and NRA in implementing staffing changes necessary as a consequence of the reduced role of NRA. Other changes will include broadening Board membership to include community representatives, strengthened transparency and accountability of the Road Fund, support for raising revenue from road users, and methods for oversight of planning allocations. A new role for the NRA may be appropriate in developing and promulgating a business model for road maintenance undertaken by regional and provincial administrations. Capacity will be developed in the DOW and NRA in managing necessary staff transfers / redundancies, with the Board and its Secretariat in carrying out their role, and in working with the DOW Asset Management function to support maintenance planning and reporting to the Board.

42. Sources other than SHHIP will be needed to fund these interventions that target additional capacity gaps.

43. **Assessment Findings.** It is clear that there remain substantial capacity gaps that impact on DOW:

- There is a need to ensure that corporate plan implementation is achieved;
- Best practice civil works mechanisms, systems, competencies, and standard practices should be demonstrated to fulfil the functions performed for road infrastructure maintenance, rehabilitation and development;
- Some functional systems need refining or developing;
- Compliance with systems and procedures needs managerial support, monitoring and training;
- Employees need skills training and professional development to fill competency gaps and limitations in their qualifications;
- There is a lack of specialist staff in certain functions and an excess in others;
- There is an incomplete structural change and a severe problem of unallocated staff;
- There is weak capacity for deployment of DOW staff to the PMO;
- Existing systems and structures may serve as to weaken the SHHIP and semi-autonomous operations with proper oversight will be necessary; and
- Workforce management should be targeted as a key strategy for strengthening DOW.

44. Identified strengths and weaknesses of the DOW are therefore summarized in the below SWOT analysis table:

<p><b>Strengths</b>            New organizational structure            Corporate Plan modern and supported            Competent senior executive            Experience in project management            Record of achieving annual expenditure</p>	<p><b>Weaknesses</b>            High number of management layers            Lack of technical and managerial capacity            Difficulty in retaining engineers            No road safety planning support            Poor workforce capacity            Independence of provincial staff too limited            Travel procedures limit staff productivity            Contractor administration is weak            Poor HRM impacting work quality</p>
<p><b>Opportunities</b>            TSSP (DFAT project) support</p>	<p><b>Threats</b>            Inefficient and confused structure with NRA</p>

Other donors giving support  
Leadership role of DOW recognized by NEC  
Trend to increased transparency eg OGP  
Public service initiative in leadership dev  
Government decentralization policy  
Provincial administration access to funds for  
road maintenance and development

Political interference to decisions  
Unclear how IDA will be structured  
Variable commitment to road safety

45. Overall, the assessment concluded that many institutional capacity strengthening initiatives are needed to fill existing capacity gaps. These include civil works best-practice modelling, system development, competency development, qualification strengthening, leadership development, procedural compliance, professional behavior guidance, employee engagement, productivity strengthening, as well as stronger management needed to ensure staff perform necessary functions and processes at the required level. In particular, the contracting and managing of civil works are hampered by weaknesses at regional and provincial levels. There is a priority need for strengthening the workforce and to do this at the highest levels and by focusing performance management on stated plans.