Institutional Analysis and Development Plan

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PNG: Multi-tranche Financing Facility for the Sustainable Highlands Highway Investment Program
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APPENDICES:

Appendix 1: Executing Agency Capacity
Appendix 2: Sector Institution Authority and Structure
A. Introduction

1. Institutional capacity in the Papua New Guinea (PNG) roads subsector has been assessed and is herewith reported at both the executing agency (EA) and sector levels. This scope determination for the report reflects stakeholder inputs regarding system performance over the last decade, particularly as they may impact specifically on the design and implementation of the Sustainable Highlands Highway Investment Program (SHHIP).

2. Previous and ongoing technical assistance from development partners and the passage of time has only partly reduced the capacity gaps and as they remain, these shortcomings continue still to weaken road sector management in PNG.

3. On the one hand, the Department of Works (DOW) has moved from a traditional in-house model of civil works to a modern outsourced-project model, but has struggled to grow its capacity into this new model and this is evident in the quality of roads being built and maintained. DOW’s performance has been held back by poor systems, ineffective staff structure, impotent management, weaknesses in staff competency, and problems in funding.

4. On the other hand, the sector structure features a National Roads Authority (NRA) which was established with laudable objectives, but then suffered repeatedly from limited capacity and inconsistent budgets and revenue. Further, there was always concern about the overlap of roles between the NRA and the DOW, and over time this issue has actually grown in significance, wherein now it may be considered as “the elephant in the room”. It is clear that the NRA is in need of a changed role statement, restricting it to the managing the Roads Fund so as to avoid structural ambiguities and duplication within the sector, and a revamped funding structure that ensures road user charges meet road maintenance demands. At the same time, there is a case for the NRA broadening its role by supporting road maintenance activity undertaken by decentralized (provincial, district, and local) administrations as appropriate.

5. Not all PNG entities and organizations involved in road governance and management have been reviewed in this institutional assessment. Rather, there has been focus on the specific needs of SHHIP that recognizes that some capacity issues are more likely to affect SHHIP implementation than others. Also, it is clear that SHHIP funding for institutional strengthening is limited and it is pragmatic to avoid processes that may lead to development partner duplication in capacity development.

B. Institutional Capacity Assessment and Development: Executing Agency

6. Introduction. Institutional capacity has been assessed at executing agency (EA) level, hence, this section reports existing capacity of DOW, particularly, those current arrangements and factors that will impact on SHHIP. The capacity assessment of DOW is provided in full in Appendix 1. It demonstrates that there are a number of capacity gaps in DOW, and therefore a strong need for institutional strengthening for implementation support and capacity development through the Program Management Office (PMO) as well as for reform in a number of strategic areas that impact beyond the PMO.

7. Following a recent organizational restructure, the DOW establishment now includes 1,526 jobs. Implementation of this new structure is proceeding well, but not all of the new establishment jobs are yet filled and there are more unallocated employees than there are vacant jobs to be filled. The establishment figure is a significant and healthy reduction from the past figure of 1,917 positions when force account required higher levels of staffing. However, there is an argument that the total number of staff should continue to be reduced over time as capacity develops.
8. It is likely that there will be a number of redundant staff, perhaps up to 400, from the current restructuring, but this is not yet finalized. There will be a need for strong management decision-making to conclude the necessary steps of allocating and shedding staff. Once implemented, the modality shift from force account to project management should be completed.

9. Once the restructuring is completed, there should be a process for system analysis (e.g. through process mapping, strengthening of computer usage, reduced numbers of approval steps) to allow further improvement to the staffing picture as well as other benefits.

10. The new organizational structure features three Deputy Secretaries reporting to the Secretary along the following areas:

- Corporate Services
- Operations
- Strategic Planning

11. Below the levels of Secretary and Deputy Secretary there are quite a number of managerial, technical, and officer levels. This approach has the appearance of being excessively bureaucratic, but does reflect the norm in the PNG Public Service.

12. The institutional assessment registers concern with the length of the vertical structure in DOW, or the number of layers in management and technical decision-making, noting that this can lead to decision and communication impediments in senior management as well as in the managerial and supervisory structure beneath the layers of senior management. This long vertical structure does not reflect modern approaches to structure design as it impacts decision times, overlapping authority, and is generally likely to have reduced cost effectiveness. There can also be a tendency to bypass hierarchical order in a way that may not be beneficial.

13. A flatter structure would feature fewer levels of decision approvals and allow faster decision-making and better communication between higher-level managers and non-managerial staff. It would also allow reduced costs with fewer management layers. While some organizations benefit from a long vertical structure, in an organization like DOW this is not the case, and achieving a flatter structure would be a beneficial strategy in time. The quality of the DOW work processes and decisions would also benefit from enhanced decision-making and communications that flow from such changes.

14. 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.

15. 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 activities.
16. 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.

17. 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.

18. 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 benefit from turning this around. One common characteristic 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.

19. 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.

20. 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.

21. The DPM supports the "Gender Equity and Social Inclusion (GESI) Policy", a key 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 with very few women in senior or technical positions, and 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.

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

23. **Technical Capacity**: One of the benefits of development partner support sector-wide has been the strengthening of technical capacity supported by 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.

24. 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.

25. 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.

26. 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.

27. 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”.

28. 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.

29. 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.

30. 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.

31. **Function Capability:** Organizations are generally structured around functions which bring together common forms of work, knowledge and tools, and therefore, allows for efficient operation. If the 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 planning functions should drive the organization in achieving its mandate, and their lower level sub-functions should drive systems and processes.
32. 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.

33. 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.

34. 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 Human Resource Development (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.

35. 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).

36. 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 manual should be developed for this task.

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

38. 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.

39. Safeguards are managed through the Environment and Social Safeguards Unit (ESSU). This unit has staffing strength in environment and social safeguards but there is 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, there will be a need to supplement their inputs to the SHHIP with international and national consultants.

40. 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.

41. 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.

42. 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.

43. 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.

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

45. **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 fulfill 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 the DOW.

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

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<th>Strengths</th>
<th>Weaknesses</th>
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<tr>
<td>New organizational structure</td>
<td>High number of management layers</td>
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<td>Corporate Plan modern and supported</td>
<td>Lack of technical and managerial capacity</td>
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<tr>
<td>Competent senior executives</td>
<td>Difficulty in retaining engineers</td>
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<tr>
<td>Experience in project management</td>
<td>No road safety planning support</td>
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<td>Record of achieving annual expenditure</td>
<td>Poor workforce capacity</td>
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<td></td>
<td>Independence of provincial staff too limited</td>
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<td></td>
<td>Travel procedures limit staff productivity</td>
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<td></td>
<td>Contractor administration is weak</td>
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<td>Poor HRM impacting work quality</td>
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<table>
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<tr>
<th>Opportunities</th>
<th>Threats</th>
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<tr>
<td>TSSP (DFAT project) support</td>
<td>Inefficient and confused structure with NRA</td>
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<tr>
<td>Other donors giving support</td>
<td>Political interference to decisions</td>
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<td>Leadership role of DOW recognized by NEC</td>
<td>Unclear how IDA will be structured</td>
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<td>Trend to increased transparency eg OGP</td>
<td>Variable commitment to road safety</td>
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<td>Public service initiative in leadership dev</td>
<td>Government decentralization policy</td>
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<tr>
<td>Government decentralization policy</td>
<td>Provisional administration access to funds for road maintenance and development</td>
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<tr>
<td></td>
<td>Contractor administration is weak</td>
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47. Overall, the assessment concluded that there a considerable number of institutional capacity strengthening initiatives are needed to fill capacity gaps. These include civil works best-practice modelling, system development, competency development, qualification strengthening, leadership development, procedural compliance, professional behaviour, 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 by focussing performance management on stated plans.

C. Institutional Capacity Assessment and Development: Sector Level

48. **Introduction.** Institutional capacity has been assessed at sector level by assessing existing institutional structures. The full sector structural assessment is provided in Appendix 2. The assessment demonstrates that there are a number of structural overlaps of authority and responsibility, and therefore breakdowns in decision efficiency and quality infrastructure management, notably between DOW and NRA (and potentially with Infrastructure Development Authority (IDA) where significant impact on the investment work program and budget are unclear and possibly conflictual), and to a lesser extent between DOW, NRSC and RTA. The principal structural concern is the role overlap between DOW and NRA.

49. The PNG entities and organizations involved in road governance and management include: Department of Works (DOW), Department of Transport (DOT), Transport Sector
Coordination, Monitoring and Implementation Committee (TSCMIC), National Roads Authority (NRA), National Road Safety Council (NRSC), Road Traffic Authority (RTA), District Development Authorities (DDAs), Provincial (regional) governments, District (local) governments, Open Government Partnership (OGP), and Infrastructure Development Authority (IDA).

50. Within the sector, as stated in the Corporate Plan, the DOW is responsible for:

- Planning of the management and maintenance of the road network and implementing maintenance activities on the national network in conjunction with the NRA;
- Establishing and enforcing standards for engineering and maintenance of roads and bridges throughout the country;
- Ensuring that quality standards are maintained for the road network, including undertaking technical audits for road construction projects;
- Oversight of building infrastructure in PNG through establishment and management of Building Boards; and
- Providing technical assistance to provincial, district and local level governments to develop infrastructure.

51. The NRA was established in 2003 and designed to:

- Raise funds for the maintenance of public roads;
- Ensure the efficient preparation of effective annual road maintenance programmes; and
- Ensure that all routine, specific and emergency maintenance of roads and road rehabilitation and reconstruction funded by the NRA are executed in a transparent, effective and efficient manner, in order to optimise the contribution of road assets to the economic and social development of PNG.

52. The role of the IDA has been stated as taking ownership of National Economic Council (NEC) decisions on improving infrastructure project procurement and implementation in an efficient manner, on time, within budget and of the quality or standard required, including key road infrastructure.

53. Establishing the NRA in 2003 and advocating the establishment of the IDA have been done with the best of intent. There is a strong argument for the creation of both, firstly as part of best practice in maintaining roads using a road-user revenue model, and secondly as a means for fast tracking major infrastructure developments with potential for timely and appropriate support from the NEC.

54. **Structural Concerns.** Where there are ambiguities in definitions of sector authority and responsibility, these may impact on the SHHIP and may possibly be the source of inefficiencies, confusion, and delay affecting civil works, as well as the potential for inappropriate decision-making interference and incomplete works as the parties strive for involvement and influence.

55. The proposed structure for the IDA places major infrastructure development under the auspices of the NEC. Where IDA undertakes highway development, there is a potential conflict with the road investment role of the DOW. This is already happening, with duplication of proposals going forward for the same stretch of highway.

56. There is an obvious need for coordination to avoid mismanagement of proposal development and confusion with funding agencies. In particular it is important that funding provision for new construction is not approved without taking into account the total roads.
budget and the need to properly fund maintenance of the whole road network. Decision-making by disrupting the normal chain of command is never appropriate but at the very least open communication and preservation of long-term principles for road maintenance are appropriate.

57. Both the DOW and NRA undertake national road maintenance. This is an inappropriate duplication and leads to cost inefficiencies in use of labor, contradictory information, confusion over database management, and communication problems. There is little rationale to maintain this duplication.

58. As stated in the Act, the NRA has a number of potential responsibilities, depending on what has been gazetted, and these could be broadened or narrowed simply by proclamation through the Gazette under the Act. Most agree that there have been problems with the NRA, mainly as a result of fundamental aspects of its role not being fully implemented as intended. This is exacerbated by its unnecessary undertaking road maintenance.

59. There is little advantage gained from having these two organizations both managing road maintenance. The NRA role could be adjusted to cease maintenance contracting and to focus its role on the National Road Fund and as a national leader of road maintenance systems. Described below is a possible new NRA role in assisting provincial governments in managing the provincial and local roads networks.

60. The NRA has received significant capacity development in the years since its creation but the impact has been diluted by continuing weaknesses in implementation and the ambiguities in its role. One fundamental role for NRA is in managing the Road Fund which was established but has never been properly or adequately resourced. By virtue of its designated albeit limited road maintenance responsibility, the management of the Road Fund not been separated from the management of the maintenance of roads.

61. It is generally assumed that a Road Fund collecting funds for planned road maintenance should be managed separately from the contracting of that road maintenance. Key best practice principles for road maintenance have been stated as:

- Develop capacity of road agencies;
- Establish a road fund;
- Separate the road fund from the road works agency managing road maintenance and rehabilitation;
- Set up Board comprising government officials and road user representatives to determine allocations from the fund;
- Appoint a small secretariat to manage affairs of the fund;
- Establish road tariffs (access and use fees) as the only source of funding for road maintenance;
- Set tariffs to ensure revenue for fund matches required costs; and
- Ensure that the road works agency operates the work program efficiently and effectively on behalf of users.

62. There is potential for minor adjustment of the NRA role to achieve this single aspect of best practice and for DOW to take on the NRA road maintenance contracts.

63. **Strengthening of NRA.** There are strengths and weaknesses in the current institutional structure, and there are opportunities to resolve some of the weaknesses.

64. The NRA Board has been established and is ready to take on a strong role in revenue raising for the Road Fund, perhaps with increased community representation. The executive
management of the NRA is in place and should be supported with a more focussed role for the NRA.

65. Certainly it is evident to most road engineering professionals that the current institutional duplication of road maintenance contracting by DOW and NRA is not cost effective. But there remains a need to maintain the NRA to deliver good management of the Road Fund. The Board and Fund structure are key elements of best practice in road maintenance and should be strengthened.

66. There is also a possible new role for the NRA in developing and leading a road maintenance business model for delivery at local and provincial levels. Funds that are provided directly to provincial governments for local-level road maintenance should be required to be used in accordance with an NRA business model thereby building best practice in the maintenance of these regional or local-level roads. Capacity and common procedures could be built by the NRA by building and promulgating a business model covering design, procurement, contracting, supervision, and management as well as guidelines for standard price range, expected standards, and holding a contractor accountable.

67. Hence, at the national level, there should be a separation of the NRA and DOW roles in national road maintenance, while at the sub-national levels of government there should be leadership by the NRA in supporting and overseeing their local-level road maintenance. This structure would be a better value for money than is currently provided for road maintenance.

68. Enactment of other agreed best practice road maintenance principles for the Road Fund is also needed. This should include establishing the means for setting tariffs, provision of revenue from tariffs into the Road Fund, cost planning to ensure revenue balances the road maintenance need, transparent funding provided from Road Fund for contracted road maintenance, and accountable audit control. These would ensure that the NRA is better able to function in support of efficient sector management of roads.

69. It is therefore recommended that the ADB support review, redesign and change management advice necessary at institutional level to reduce problems of overlap of authority and responsibility in road maintenance. This assistance would ensure that:

- The NRA is able to cease having any role in operational contract procurement and management and that existing contracts be transferred to the DOW;
- Staffing and role for a Secretariat is identified in the NRA with clear responsibilities to manage the affairs of the Road Fund and the Board;
- NRA staff who are not involved in the Road Fund Secretariat or other needed functions are transferred to the DOW or RTA, are deployed to developing and supporting a business model for local-level road maintenance undertaken at sub-national level, or are processed for employment termination through normal redundancy provisions;
- The Board membership rules be broadened to include community representatives. This would support the PNG planning for OGP membership by demonstrating strengthened transparency and accountability of the Road Fund and community involvement in the NRA Board with oversight of raising road user revenue and planning road maintenance allocations;
- Develop capacity in the DOW and NRA in handling necessary staff transfers / redundancies;
- Develop capacity in the NRA in liaising with the DOW Asset Management function to support the maintenance planning reporting provided through the Secretariat to the Board;
- Develop capacity in the NRA in designing and supporting a business model for application by sub-national administrations in maintaining local-level roads; and
• Develop capacity in the NRA, notably the Board and its Secretariat in carrying out their role.

70. The role of the IDA has not been analyzed in depth for this assessment. However, there are potential structural issues between IDA and DOW, again from confusion through overlapping of authority. There certainly may be benefits from an IDA taking responsibility for some major road projects, however, this needs to be managed in close cooperation with the DOW to benefit from their asset records, industry connections, overall knowledge of the network and usage patterns, and their demonstrated ability to deliver on large projects. A well-managed IDA will be a benefit for the sector, particularly where there is proper involvement of DOW. This will allow the best result for PNG.

71. One problem is that the design and planning of IDA investment operations appears to be disconnected from a unique network management approach in that it disrupts the investment – maintenance expenditures balance and proposes designs that exceed the actual needs and funding resources. The Design-Fund-Build contractual approach pursued by IDA may relieve current budget constraint but builds up liability in the future for a country where the debt service is already a concern, not to mention that this approach is known to be more expensive because of heavy financial charges.

72. Equally important is the principle that provision is made for the ongoing maintenance of new roads constructed through the IDA. There have been many cases of new roads not being maintained over the years and allowed to deteriorate. It is a clear engineering principle that all roads must be maintained regularly or the overall costs of their management increase over time. This requires proper funding as well a strong cooperation and planning between the DOW, NRA and IDA. The agencies should be supported in the future as needed to sustain best road management practices.

73. It is apparent that the PNG government will continue support for decentralized funding and decision-making. While this in theory diminishes the funding for and institutional strength of DOW to perform its role, it has benefits in spreading the resource administration to local levels, and represents an opportunity for grounded engineering and safeguards processes and decisions relevant for local communities. While some see merit in central funding of road infrastructure development and maintenance in any developing country, there is little likelihood of this happening in the current or projected PNG political scenario and it is more realistic and very appropriate that ADB operates within this reality.

74. It is therefore recommended that the ADB support strong project management in SHHIP which facilitates and benefits from decentralization when appropriate. This could involve subnational interactions with DDAs in order to reduce decision blockers and gain access counterpart contributions.

D. Civil Works and Institutional Strengthening through SHHIP

75. Overall Approach. The previous sections outlined the assessments of institutional capacity, both at the executing agency level (DOW) and also at sector level (institutional structure).

76. The SHHIP will cover significant investment and maintenance for the Highlands Highway. Available funds will be dedicated to the provision of civil works, contract supervision, and implementation support and capacity building. The program concept and design is very much driven by the current condition of the highway plus the prevailing weather and geographical factors; but another factor that determines SHHIP planning is institutional capacity.
Rather than focussing on the capacity needed for the totality of road management in PNG, it has been appropriate to focus this DOW capacity analysis by identifying issues that directly impact the 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.

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

There will be a three-tiered management approach: strategy and policy management with oversight role, civil works contractor supervision ensuring contract compliance by appointed contractors, and an integrated and dedicated PMO ensuring that government and ADB procedures are enacted.

Rather than deploying capacity building 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, 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.

With the DOW safeguards function being located in Port Moresby with limited operational capacity, there will be a need for institutional strengthening 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.

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 institutional strengthening will be largely civil works focussed.

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 behaviour 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 capacity development 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.

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.

85. **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.
Past Capacity Issues
- Fiscal problems
- Provincial structures weak
- HH allowed to deteriorate
- Deficient implementation of asset management program
- Weak performance and quality monitoring
- Inconsistent funding of works programs
- Shortages of qualified technical staff
- Need for long-term perspective
- Weak HQ management systems
- Delays in management action

SHIP Strategy
- Government Oversight
- Stakeholder Representation
- Performance Monitoring
- Fiscal Management

Core management team
- Civil works in 3 tranches
- Program for 10 years
- Annual Work Plans

International Team Leader
Program Manager
Contract Management Expert

INVESTMENT PROGRAM FUNCTION CHART

Structural Entities
- PSC
  - PSC Secretariat
  - Program Director
  - International Team Leader
  - Program Manager

Contract Management Expert

Sub-project Management
- Supervision Engineer 1
- Supervision Engineer 2
- Supervision Engineer 2A

International Consultants
- Senior Road Engineer
- Social Safeguards Expert
- Environmental Safeguards Expert

National Consultants
- Social Safeguards Specialist x 2
- Environmental Safeguards Specialist

International Consultants
- Road Engineer
- Social Safeguards Expert

National Consultants
- Social Safeguards Specialist x 2
- Environmental Safeguards Specialist

International Consultants
- Financial Management Expert

National Consultants
- Accountant

DOW Staff
- Social Safeguards Officer x 2
- Finance Officer
- Ancillary staff: Project assistance, Drivers, Cleaning

Responsibility
- Governance
- Budget Approval
- Work Plan Approval
- Performance Review

Program Management
- Coordination
- Technical Leadership
- Cost Effectiveness

Annual Work Plan Compliance
- Contract supervision
  - Quality Compliance

Operations Oversight
- Contractor and Engineer Performance
- Corrective Actions

Funds Disbursement
- Accurate Records
- Financial Reporting

SHHIP AIM TO BE BEST PRACTICE
- SHHIP Design
- Plan period long term
- Roadside social infrastructure
- Response to weather extremes
- Large scale investment program
- Continued full-coverage maintenance
- Combine maintenance and upgrading
- Integrate implementation support and capacity building
- Traffic safety

SHIP Member Categories
- International Consultant
- National Consultant
- DOW Funded
86. The design of PMO and capacity building activities under SHHIP has been based on need as per this assessment. 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.

87. 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 capacity building assistance; and (v) to support the policies of NTS and in particular to focus on sustainable maintenance.

88. 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.

89. 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 HRRIIP 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 tranches approved under the investment program in accordance with the provisions of the FFA, this FAM, and related legal agreements.

90. 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).

91. 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.

92. 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 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.

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

94. 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.

95. **Capacity Gaps where Separate Funding is Required.** 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.

96. However it is appropriate to mention three key capacity gaps identified by this analysis. Firstly there is a need for 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.

97. 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.

98. 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 payments, policy implementation, plan achievement, and M&E functions.

99. 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.

100. Further analysis and change management is required. It is proposed that 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.

101. The staffing structure for the SHHIP is portrayed in the following organizational chart, and terms of reference are detailed in the following section.
E. Capacity Building under SHHIP

102. **Introduction.** The government has requested capacity development to support the DOW to implement the SHHIP. The funding available for this assistance is limited by the overall funding envelope for SHHIP and must take into account likely cost of civil works as well as supervision and priority elements of program implementation. During consultations and assessments to design the facility, preliminary cost estimates and financing arrangements for this assistance have been developed.

103. **Assessment Findings.** The institutional assessments and other inputs reveal that DOW and sector capacity has developed in recent years, particularly evidenced by moving from in-house to contracted works approach, restructuring the organization, strengthening training systems and delivery, and improving procedural compliance. Progress has been made, but there remain gaps in managerial capacity, with a need to strengthen contract and project management, procurement, safeguards, work processes, employee supervision, and there is a particular weakness in workforce management. Of particular relevance to SHHIP, the assessment also concluded that there is further competency development needed for system design and documentation, for staff to perform necessary functions and processes at the required level, and for performance indicators to be set and measured as part of a
proactive approach to demonstrate targets being met in work speed, quality, efficiency, transparency, and effectiveness.

104. 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.” Therefore, a key goal of the capacity development assistance 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.

105. The assistance provided under SHHIP 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.

106. This model will 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 behaviour 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 capacity building assistance 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.

107. The capacity building assistance 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 restored, effectively maintained, and upgraded as required to be safe, climate- and disaster resilient for all users: The capacity building 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: This output will only materialize in Tranche 3. Transport logistics and services improved in the Highlands region to strengthen value chain for domestic and international trade. If there are land and resettlement issues they will be addressed by a safeguards team composed by social safeguards international experts and local specialists who will conduct surveys and consultations as needed.

- Output 4: Program management and institutional capacity improved to deliver the program and sustain its benefits. The capacity building includes a combination of planning and implementation oversight supported by high-level technical expertise. The processes of program management will serve as a model for similar project operations in other parts of the road network.
108. Capacity Building assistance for Tranche 2 and 3 are to be designed in the year prior to their commencement, applying lessons learned from the previous tranche as well as supporting sector strengthening that addresses gaps identified in this report including DOW-NRA structural change, workforce management, and data management and reporting strengthening.

109. **Consulting Services Tranche 1.** International and national consulting services roles are outlined below:

### Summary of Consulting Services Tranche 1

<table>
<thead>
<tr>
<th>Positions</th>
<th>Number</th>
<th>Total Inputs (person-months)</th>
<th>Direct Costs (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. International</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. International Team Leader</td>
<td>1</td>
<td>40</td>
<td>1,326,400</td>
</tr>
<tr>
<td>2. Contract Management Expert</td>
<td>1</td>
<td>37</td>
<td>1,046,900</td>
</tr>
<tr>
<td>3. Secretariat Head, Civil Works Expert</td>
<td>1</td>
<td>34</td>
<td>967,400</td>
</tr>
<tr>
<td>4. Senior Road Engineer</td>
<td>2</td>
<td>72</td>
<td>1,974,400</td>
</tr>
<tr>
<td>5. Road Engineer</td>
<td>1</td>
<td>36</td>
<td>930,400</td>
</tr>
<tr>
<td>6. Social Safeguards Expert</td>
<td>3</td>
<td>102</td>
<td>2,386,900</td>
</tr>
<tr>
<td>7. Environment Safeguards Expert</td>
<td>1</td>
<td>32</td>
<td>754,400</td>
</tr>
<tr>
<td>8. Road Safety Expert</td>
<td>1</td>
<td>32</td>
<td>794,400</td>
</tr>
<tr>
<td>9. Financial Management Expert</td>
<td>1</td>
<td>28</td>
<td>808,400</td>
</tr>
<tr>
<td><strong>Sub Total (A)</strong></td>
<td>12</td>
<td>413</td>
<td>10,989,600</td>
</tr>
<tr>
<td><strong>B. National</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Social Safeguards Specialist</td>
<td>6</td>
<td>264</td>
<td>660,000</td>
</tr>
<tr>
<td>11 Environment Safeguards Specialist</td>
<td>3</td>
<td>132</td>
<td>247,500</td>
</tr>
<tr>
<td>12 Accountant</td>
<td>1</td>
<td>44</td>
<td>82,500</td>
</tr>
<tr>
<td><strong>Sub Total (B)</strong></td>
<td>10</td>
<td>440</td>
<td>990,000</td>
</tr>
<tr>
<td><strong>Total (A+B)</strong></td>
<td>22</td>
<td>853</td>
<td>11,979,600</td>
</tr>
</tbody>
</table>

110. **Terms of Reference.** The terms of reference for international and national consulting positions are provided below:

#### INTERNATIONAL CONSULTANTS

<table>
<thead>
<tr>
<th>International Team Leader (International, 40 person-months)</th>
<th>Purpose: 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 SHHJP planned objectives, outcomes and outputs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope:</strong> 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 capacity building assistance, 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.</td>
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<tr>
<td><strong>Responsibilities:</strong> Within the overall scope, the key tasks of the International Team Leader will be, to: (i) Lead work program planning and scheduling...</td>
<td></td>
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</tbody>
</table>
for SHHIP’s annual work program and identify financial and personal resource and system needs; (ii) Lead and manage capacity building 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 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.

Outputs: 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; capacity building 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.

Minimum Qualification Requirements: 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.
Contract Management Expert (International, 37 person-months)

**Purpose:** 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.

**Scope:** 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.

**Responsibilities:** 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.

**Outputs:** 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.

**Minimum Qualification Requirements:** 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.

<table>
<thead>
<tr>
<th>Secretariat Head, Civil Works Expert (International, 34 person-months)</th>
<th>Purpose: 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.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scope: 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 (PMO); (iii) approval of appointment of staff to the PMO; (iv) monitoring of progress and review of the performance of the PMO including the capacity building assistance; 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.</td>
</tr>
<tr>
<td></td>
<td>Responsibilities: 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.</td>
</tr>
<tr>
<td></td>
<td>Outputs: 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.</td>
</tr>
<tr>
<td></td>
<td>Minimum Qualification Requirements: 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</td>
</tr>
</tbody>
</table>
systems in developing countries, data analysis and report writing skills, and good communication competencies.

<table>
<thead>
<tr>
<th>Senior Road Engineer (International, 2 x 36 person-months)</th>
<th>Purpose: The Senior Road Engineer will support the International Team Leader in SHHIP as a technical leader and engineering expert in supporting contract implementation.</th>
</tr>
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<tbody>
<tr>
<td><strong>Scope:</strong> 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 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.</td>
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<tr>
<td><strong>Responsibilities:</strong> 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; (viii) 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.</td>
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<tr>
<td><strong>Outputs:</strong> 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.</td>
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<tr>
<td><strong>Minimum Qualification Requirements:</strong> 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</td>
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</table>
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.

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<tr>
<th>Road Engineer (International, 36 person-months)</th>
<th>Purpose: The Road Engineer will support the Senior Road Engineer in SHHIP as a technical advisor and engineering expert in supporting contract implementation.</th>
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<tbody>
<tr>
<td><strong>Scope:</strong> 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.</td>
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</tr>
<tr>
<td><strong>Responsibilities:</strong> 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; (viii) 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.</td>
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<tr>
<td><strong>Outputs:</strong> 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.</td>
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</tr>
<tr>
<td><strong>Minimum Qualification Requirements:</strong> 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.</td>
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</tr>
</tbody>
</table>
| Social Safeguards Expert 1, Land Acquisition and Resettlement (International, 34 person-months) | **Purpose:** 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.  

| **Scope:** 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:  
- 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  
- Community consultations and disclosure of plans to affected parties  
- APs entitlements for due diligence requirements and preparation of Land Acquisition and Resettlement Plans  
- Department of Land and Physical Planning (DLPP) and provincial authorities  
- Grievance redress mechanism and complaints  
- Coordinating with other safeguard experts working on the program (in the DOW ESSU, SC and PMO). |  

| **Responsibilities:** 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. 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. |  

| **Outputs:** 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. |  

| Minimum Qualification Requirements: 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.

**Social Safeguards Expert 2, Gender and Social Development (International, 34 person-months)**

**Purpose:** 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. 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.

**Scope:** 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:

- Engineering design
- Community consultations and disclosure of plans to affected parties
- Women’s work groups and market vendor groups
- Local service providers and NGOs for the implementation of the HIV/AIDS and gender
- GAP implementation
- Gender-related activities with the PMO, DPW, the ADB, NGOs, provincial and district authorities and other consultants.

**Responsibilities:** 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.

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.

**Outputs:** 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.

**Minimum Qualification Requirements:** 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 transport sector 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.

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<tr>
<th>Social Safeguards Expert 3, Community Participation (International, 34 person-months)</th>
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| **Purpose:** 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.

<table>
<thead>
<tr>
<th>Scope: 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:</th>
</tr>
</thead>
</table>
| • 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  
• The Community Participation Plan and community consultations and disclosure of plans to affected parties  
• APs entitlements for due diligence requirements and preparation of Land Acquisition and Resettlement Plans  
• Department of Land and Physical Planning (DLPP) and provincial authorities  
• Grievance redress mechanism and capacity building for the Grievance Redress Committees in each province  
• Community labour based contracts  
• Internal coordinating with other safeguard experts working on the program (in the DOW ESSU, SC and PMO). |

| Responsibilities: 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 |
practise, 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.

**Outputs:** 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.

**Minimum Qualification Requirements:** 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.

<table>
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<tr>
<th>Environment Safeguards Expert, (International, 32 person-months)</th>
<th>Purpose: 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.</th>
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<tr>
<td><strong>Scope:</strong> 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 three PMO contracts, and will exercise this responsibility constructively where general safeguards issues are evident.</td>
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<tr>
<td><strong>Responsibilities:</strong> 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</td>
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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.

**Outputs:** 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 Safeguards 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).

**Minimum Qualification Requirements:** 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 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)

**Purpose:** 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.

**Scope:** 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.

**Responsibilities:** 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; (ix) 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.

Outputs: 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.

Minimum Qualification Requirements: 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)

Purpose: The Financial Management Expert will support the International Team Leader to ensure compliant, efficient and effective use of program resources.

Scope: 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.

Responsibilities: 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 imprest 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 imprest 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.

Outputs: 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.

Minimum Qualification Requirements: The Financial Management expert should have a degree in accounting, business, finance, or equivalent in a 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.

NATIONAL CONSULTANTS

Social Safeguards Specialist (National, 6 x 44 person-months)

Purpose: The Social Safeguards Specialist (National) will provide implementation support to the PMO/DOW for land acquisition activities along the Highlands Highway during its upgrading.

Scope: 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.

Responsibilities: 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.

Outputs: 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 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.

Minimum Qualification Requirements: 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.

Environment Safeguards Specialist (National, 3 x 44 person-months)

Purpose: 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.

Scope: 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.

Responsibilities: 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.

Outputs: 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).

Minimum Qualification Requirements: 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.

<table>
<thead>
<tr>
<th>Accountant (National, 44 person-months)</th>
<th>Purpose: 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.</th>
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<td>Scope: 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.</td>
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<td>Responsibilities: 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</td>
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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

**Outputs:** 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.

**Minimum Qualification Requirements:** 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.

111. The assumptions made in the costing of the capacity building assistance are shown in the table below:

<table>
<thead>
<tr>
<th>CONSULTING POSITIONS</th>
<th>DIRECT COST FOR A WORKED MONTH (USD)</th>
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<tbody>
<tr>
<td></td>
<td>Fee</td>
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<tr>
<td>International</td>
<td></td>
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<tr>
<td>1. International Team Leader</td>
<td>18,000</td>
</tr>
<tr>
<td>2. Contract Management Expert</td>
<td>14,000</td>
</tr>
<tr>
<td>3. Secretariat Head, Civil Works Expert</td>
<td>14,000</td>
</tr>
<tr>
<td>4. Senior Road Engineer</td>
<td>14,000</td>
</tr>
<tr>
<td>5. Road Engineer</td>
<td>12,000</td>
</tr>
<tr>
<td>6. Social Safeguards Expert</td>
<td>11,000</td>
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<tr>
<td>7. Environment Safeguards Expert</td>
<td>10,000</td>
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<tr>
<td>8. Road Safety Expert</td>
<td>11,000</td>
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<tr>
<td>9. Financial Management Expert</td>
<td>14,000</td>
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<tr>
<td>National</td>
<td></td>
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<tr>
<td>10. Social Safeguards Specialist</td>
<td>2,000</td>
</tr>
<tr>
<td>11 Environment Safeguards Specialist</td>
<td>1,500</td>
</tr>
<tr>
<td>12 Accountant</td>
<td>1,500</td>
</tr>
</tbody>
</table>

*Note: these rates are not market tested and are indicative only*
112. The cost of capacity building assistance includes direct costs to cover the remuneration of consultants, plus indirect costs for international and domestic air travel. These are calculated to be $11,382,000 and $597,600 respectively.

113. There are also additional costs for implementation support including training (community representatives and road sector employees), social safeguards surveys and action plans implementation, environmental safeguards noise and air and water sampling analysis, and road safety data analysis and awareness campaigns. These expenses are calculated to be $2,132,000.

114. These direct, indirect and additional implementation support costs are presented below in detailed format. These are for the Tranche 1. All these costs are base costs, i.e. they do not include taxes and contingency. Naturally it will be the responsibility of the International Team Leader to manage expenditure in conjunction with the Program Manager to gain value-for-money.

115. The projected total expenditure for capacity building assistance is shown in the table below:

<table>
<thead>
<tr>
<th>CONSULTING POSITIONS</th>
<th>CAPACITY BUILDING ASSISTANCE TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Remuneration</td>
</tr>
<tr>
<td>International</td>
<td></td>
</tr>
<tr>
<td>1. International Team Leader</td>
<td>1,260,000</td>
</tr>
<tr>
<td>2. Contract Management Expert</td>
<td>980,500</td>
</tr>
<tr>
<td>3. Secretariat Head, Civil Works Expert</td>
<td>901,000</td>
</tr>
<tr>
<td>4. Senior Road Engineer</td>
<td>1,908,000</td>
</tr>
<tr>
<td>5. Road Engineer</td>
<td>864,000</td>
</tr>
<tr>
<td>6. Social Safeguards Expert</td>
<td>2,320,500</td>
</tr>
<tr>
<td>7. Environment Safeguards Expert</td>
<td>688,000</td>
</tr>
<tr>
<td>8. Road Safety Expert</td>
<td>728,000</td>
</tr>
<tr>
<td>9. Financial Management Expert</td>
<td>742,000</td>
</tr>
<tr>
<td><strong>International Capacity Build SubTotal</strong></td>
<td><strong>10,392,000</strong></td>
</tr>
<tr>
<td>National</td>
<td></td>
</tr>
<tr>
<td>10. Social Safeguards Specialist</td>
<td>660,000</td>
</tr>
<tr>
<td>11 Environment Safeguards Specialist</td>
<td>247,500</td>
</tr>
<tr>
<td>12 Accountant</td>
<td>82,500</td>
</tr>
<tr>
<td><strong>National Cap Build Subtotal</strong></td>
<td><strong>990,000</strong></td>
</tr>
<tr>
<td><strong>Capacity Building Total</strong></td>
<td><strong>11,382,000</strong></td>
</tr>
<tr>
<td><strong>Implementation Subtotal</strong></td>
<td></td>
</tr>
</tbody>
</table>
One option that has been considered is whether the international technical assistants should be contracted through a consulting firm or recruited and employed by ADB using the Consultant Management System (CMS). While it is often attractive to outsource complex technical assistance to a firm, experience suggests that the value added to implementation support and capacity building for civil works can be limited, and in some scenarios may demand executing agency and donor involvement in monitoring, evaluating, enforcing and litigating accountability. The obvious advantage of directly contracting international consultants through the CMS is in the cost reduction by avoiding corporate and margin expenses that flow from any involvement of an international consulting firm. Direct contracting is also a means for the ADB to ensure that international appointees are of the highest international calibre. The financial information projections assume a formula that includes the costs of a firm, but it is recommended in program implementation that the CMS be used for international consultants and savings be returned to cover other contingencies.

In summary, the international and national capacity building assistance cost projections for Tranche 1 will include:

- Consulting Inputs: 853 person months
- Direct Expenses: $11,382,000
- Air Travel Expenses: $597,600
- Implementation Expenses: $2,132,000
- Total Cost: $14,111,600

In addition to implementation support and capacity building 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.

In conclusion, the cost of the capacity building assistance and implementation support 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.
Appendix 1: Executing Agency Capacity

A. Introduction

1. The Department of Works (DOW) is the Executing Agency for the Multitranche Financing Facility for the Sustainable Highlands Highway Investment Program (SHHIP).

2. The DOW is currently implementing the ongoing ADB-funded Multitranche Financing Facility Highlands Region Road Improvement Investment Program (HRRIP) and is being provided assistance through the DFAT-funded Transport Sector Support Program (TSSP). The HRRIP is an investment program for road improvements to about 1,400 km on the Highlands core road network (HCRN) of 2,500 km of major national and some provincial roads, and includes program support and capacity development. The TSSP supports implementation of the Medium Term Transport Plans (MTTP) agenda for the development and implementation of transport policy; institutional development and capacity building; a legislative program; and transport infrastructure investment over the first five-year period of the National Transport Strategy (NTS) 2011-2030.

B. Situation Analysis

3. The DOW establishment now includes 1,526 jobs and these are contained in a new organizational structure. Not all of the new establishment jobs are yet filled, but also there are more employees than there are jobs. The actual number of employees is reported to be about 1900. The establishment figure is a significant and healthy reduction to the past figure of 1917. Overall there are 61 positions in management. There are also 41 apprentices included.

4. During 2016 a new establishment was subject to implementation through structural change procedures including organizational structure redesign, job redesign and position filling. An external recruitment company has been used to assist the DOW. Most vacant positions have been processed through internal recruitment and filling, and there has been some necessary redeployment managed through the process. After three rounds of recruitment, any unallocated staff are potentially subject to retrenchment. Many staff are starting study for degrees in recognition that JDs include requirements that effectively mean their career progress will depend on qualifications. There is hope for donor funding to assist this process of qualifications upgrading. There is currently a reasonable level of support for the new structure, and continuing support will enhance the prospects of its benefits being fully implemented in coming years.

5. The new organizational structure features three Deputy Secretaries reporting to the Secretary:

- Corporate Services
- Operations
- Strategic Planning

6. Within the senior management team are First Assistant Secretaries (7), Assistant Secretaries (10), Region Managers (4), Directors (7), and a number of other managerial posts. For this structure, the ratio of staff to senior management is 47.7 (1526/32). The managerial workload is also compounded by demands from reforms, structure implementation, and staff shedding. Given the size of DOW, this is a reasonable balance and is not top-heavy in itself.

7. Hence, the span of control of the senior managerial posts is reasonable when considering the full establishment as it reflects the perceived need for the structuring of work
into units. However, there is concern with the length of the vertical structure, or the number of layers in senior management. In general, four levels within senior management is high. For example the Assistant Secretary, Human Resources has three positions in line above it, which may lead to decision and communication impediments. Also, the managerial and supervisory structure beneath these senior management positions appears to be an excessively long vertical structure. This does not reflect modern approaches to structure design as it impacts decision times, overlapping authority, and is generally likely to be top-heavy which means reduced cost effectiveness.

8. A flatter structure is generally preferred because it allows faster decision-making due to fewer levels of approvals required for a specific decision, better and more frequent communication between higher-level managers and non-managerial staff, and reduced costs with fewer management layers drawing high salaries. The advantage of a taller structure is that it can allow more opportunities for promotion and it can be organized using decision allocation so that specific decisions receive more time by allocated managers. In an organization like DOW it is generally not possible to gain the potential benefits from a tall structure, and for a flat structure to be more beneficial.

9. Given that many DOW strategic and operational decisions require approval at each of these many layers, the consequence is likely to be slow decision-making. However Regional Works Managers apparently do have good direct access to the Secretary which strengthens the decision-making at the regional level.

10. The Deputy Secretary, Operations controls engineering and technical operations, structured into regionalized operations, centralized contract and procurement management, and project implementation structures for donor funded programs.

11. The Deputy Secretary, Corporate Services controls the Finance and HRM functions and ICT services. A First Assistant Secretary leads an Assistant Secretary, Finance and an Assistant Secretary, ICT Services. Management Services is also headed by a First Assistant Secretary, and this division is divided into two components: Human Resource Management (HRM) led by an Assistant Secretary and Human Resource Development (HRD) led by a Director. The danger in this area of the structure is that approval processes and communication channels can become very time-consuming and fraught with inappropriate interventions and blockages.

12. The current Corporate Plan covers the period 2015-2019. It is well written and nicely presented. Rather than include a detailed analysis of the current state of the organization, it identifies a crucial set of outcomes needed for DOW.

From the Government of Papua New Guinea’s Vision 2050 Transport Sector goal:

- Outcome 1: A national road network that contributes to a well-integrated, competitive, safe, affordable and environmentally sustainable transport system that serves the economy and society of Papua New Guinea.

From the Government of Papua New Guinea’s National Transport Strategy goals:

- Outcome 2: Provide better GoPNG institutional structures to deliver transport infrastructure.

In respect to good corporate governance:

- Outcome 3: Effective corporate governance which leads to achievement of corporate goals and accountable management of assets and resources.
13. These planned outcomes articulate an optimistic strategic direction that is based on demand statements rather than supply side assessments. As such they reflect stakeholder interest and government strategy inputs rather than practical assessments of current institutional capacity.

14. In order to progress towards these stated outcomes, the DOW has identified 13 planned outputs in the Corporate Plan. A performance target has been established for each output, reflecting a baseline (2015) and target performance (2019). The baseline statements represent a comprehensive assessment of the current capacity of the DOW and highlight significant weaknesses (DOW Corporate Plan pages 22-25):

- Annual works plan and program is developed each year based on approved budget, which is often inconsistent with identified priorities for the road network
- Funding for road maintenance, rehabilitation and construction is annual, requiring road agencies to apply annually for road project funding, including for ongoing projects
- Department of Works finds it difficult to recruit and retain experienced professional and technical staff, has no accurate workforce data and the Workforce Development Strategy is out of date and has not been fully and effectively implemented
- Standards for road design, engineering and construction need updating to reflect changing rainfall and run-off, contemporary practice, new materials and climate change impacts
- MTTP goals for the road network are aspirational and do not represent achievable targets in the timeframe, resulting in works planning and programming being unable to deliver the set goals
- Design capability is limited and there is a heavy reliance on out-dated standard drawings and external consultants, with minimal quality control of designs due to a lack of experienced road and bridge design staff
- A number of issues identified in the 2011 Procurement Diagnostic remain unaddressed and Annual Procurement Plans are usually not prepared or effectively implemented
- Operational management of the works program is inconsistent, with a lack of updating, enforcement and monitoring of documented contract management and administration procedures; a lack of key performance indicators for works contracts against which performance is reported and assessed; insufficient confirmation of contractor capacity at project commencement; and, inadequate cash flow planning to ensure smooth delivery of the works program
- There is minimal ongoing review and audit of the works program, limiting opportunities for improvement and failing to identify and address lack of compliance with legislation and approved policies, procedures, manuals and guidelines
- Most aspects of the corporate support framework are weak, with a need for a more complete policy and procedures framework, improved leadership and management, improved information accessibility, improved accountability in financial management at all levels, and, significant on-going organisational development including refinement of the organisational structure, stronger performance management to ensure
alignment between employee daily work effort and the achievement of organisational goals

- Departmental reporting lacks accountability, with many managers failing to submit timely performance and progress reports; ongoing progress monitoring is inconsistent and regular, programmed senior management meetings are needed to ensure ongoing monitoring of Departmental activities. Communication within the Department and to external stakeholders requires improvement to ensure there is accuracy, timelines and consistency of information to demonstrate transparency and accountability. Management decision making is often based on outdated and inaccurate information and is poorly communicated, resulting in inappropriate decisions and/or lack of implementation.

- Support is provided where available to provincial and district administrations and local level governments, however, this is not usually done as part of an integrated plan to develop both infrastructure and local technical capacity and insufficient budget limits the ability of the Department to provide such assistance.

- Department of Works' leadership and/or participation on Boards and Committees is not documented and there is no process in place to ensure that action items from Boards and Committees are actioned by the Department. There is a lack of consistency in respect to Provincial Building Boards, with some performing well whilst others rarely meet and do not address key issues. Documented policy and procedures for Provincial Building Boards and the Central Building Tribunal do not exist. There is no audit of the functioning of Provincial Building Boards.

15. These represent significant weaknesses but it is a positive sign that they are stated as baselines from which to develop during the period of the Plan.

16. For SHHIP, some of these weaknesses are more relevant than others, and other weaknesses are specifically relevant to a program such as SHHIP. These represent a significant capacity issue and program risk. Hence other weakness statements that may be a subset of these or in addition to these should be addressed as they have in common that they represent significant challenges for SHHIP.

17. Competent technical staff and engineering professionals are in short supply, mainly as a result of the private sector offering higher salaries. Like many public service employers, DOW cannot compete with private sector employers on salaries. But there are also other issues that reduce the attractiveness of attracting talented technical staff. There is a lack of management systems in DOW and this tends to reduce efficiency, increase time wastage in key processes, make communications difficult, erode chain of command, destroy work motivation and incentive, and make performance management ineffective. There is little reward for hard working and competent staff. There is a major weakness in workforce management in DOW.

18. 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 at regional and provincial level. The SHHIP will need to be able to manage the civil works for the highland highway unencumbered by capacity issues. There will be a strong need for appointment of international experts in and managing the PMO in parallel with the design and execution of works supervision contracts. Duplication and overlapping of roles should be avoided.
19. Civil works contractors are often not paid on time or are not paid at all for their work, and as a consequence unfinished work sites are not uncommon. The most frequent cause is that contracts are hastily prepared and deliberately kept within the CSTB threshold to speed up procurement. These run out of money after the authorized 20% variation increase has been reached.

20. The ESSU is responsible for implementing safeguards 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 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 officer has been recruited. New staff are not yet familiarized with the donor safeguards requirements. Three other positions remain to be filled.

21. The Department of Lands and Physical Planning maintains an archive and is trying to improve the registration of land, and recording of transactions. The DOW's Survey and Lands Branch should support the collection and retention of records but it is understood that some (Simbu) records for land payments are missing.

22. The ESSU is assisted by project-based Safeguards Specialists. The International Safeguards Specialist has been devoting more time with the safeguards compliance requirements of the Highlands Region Road Investment Improvement Program (HRR IIIP). Both ADB and WB have provided project-based resources to support ESSU, but additional and ongoing support is required most especially to address the requirements of this investment program.

23. Officers from the ESSU should be periodically deployed to Goroka to be involved in performing their social and environmental responsibility on-site, assisting the PMO and benefitting from on-the-job training provided through the PMO.

24. Financial management is spread throughout the DOW, operationally devolved in provinces, and centrally managed in HQ. The HQ administration and controls involves online access to the IFMS. Hence these officers are capable of managing financial information and fully able to operate the system. But in the provinces there is less capacity as some locations have no online access while others have little online access. This hampers operations in provincial and project finance structures, and in many cases these finance staff are required to either use an old and incompatible system or to operate manually. This 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).

25. 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 the DOW but needs to be further developed and disseminated at unit and projects levels. A Manual should be developed for this specific activity.

26. The ICT function impacts little on DOW operations and fails to lead improved communications, information storage, and management reporting.
27. There is a lack of discipline in reporting and communications, leading to lack of relevance, timeliness, comprehensiveness, consistency, and quality of technical data. Information is not used as decision-support and hence decisions are not made, are delayed, or are incorrect.

28. Many of these weaknesses are the result of lack of capacity of DOW staff and management, in particular the low level of technical competency, an apparent lack of efficient systems, lack of evidence-based policy and decision-making, and lack of information reporting. There has also developed a tendency for some technical and middle level managerial staff to rely on technical assistance rather than developing capacity to better perform necessary technical tasks themselves.

29. In many organizations, it would be appropriate to look to the corporate leadership and the human resource management function to lead change management that strengthened work systems and productivity. There is no evidence that this is happening.

30. Within the new corporate leadership structure, there is a need to strengthen managerial competencies, commitment, accountability, teamwork, goal achievement, and supervisory strength. The new structure is a good start, but its implementation needs to be supported by strengthening leadership and management.

31. The HRM function provides the standard range of HR support services and comprises about 40 staff led by an Assistant Secretary. The HRM staffing complement is relatively generous (percentage of HRM to establishment: 2.7%). However, the HRM processes demand time-consuming transactions and multiple administrative steps and forms in compliance with General Orders, hence this level of staffing is needed until procedural reforms can be achieved. There is also a lack of administrative computing capacity, meaning that information storage demands tedious and labour-intensive work including maintaining a paper-based filing system. The HRM function lacks capacity and will not develop without external support.

32. The HRD function is led by a Director who manages training and development and the function has access to good training facilities in Port Moresby. The intent stated in the Corporate Plan is to develop a workforce strategy that maps out activities and programs to ensure that the workforce meets the demands for meeting corporate goals. It also stresses the perceived priority to fill the gap of leadership and managerial capacity for existing and potential leaders and managers. The technical training supported by TSSP is of good quality and well targeted, and represents a significant opportunity for DOW to develop capacity.

33. Action in support of the workforce strategy will assist development of needed institutional capacity. In particular, improvements in leadership and managerial actions that strengthen increased accountability, efficiency and transparency are crucial. Equally crucial are technical skills for DOW staff involved in works planning, programming, procurement, contracting, supervision, payments, monitoring and reporting. Workforce development is an important transition mechanism as the DOW shifts from force account to contracted works. While residual capacity may logically be deployed to conduct emergency works in remote locations, in general the DOW workforce capacity should move to strong management of contracted works. This is a different type of capacity from traditional in-house conduct of works.

34. During the consultation processes, the lack of performance management system or action was the most frequent significant capacity deficit identified. Despite there being an existing public service manual and form (General Orders No 5) to guide action and to give effect to public service system expectations, there is a breakdown in implementation in DOW. These procedures serve a number of functions and follow a complex model that requires
The completion of 10 pages of the form, covering preparation, rating, scoring, needs assessment, and certifications. This design is not uncommon in similar organizations and countries, but here as elsewhere there is a compliance issue because the model is regarded as too demanding and is patently overly ambitious. The biggest problem in DOW is that the process has been a bureaucratic requirement rather than an opportunity for plan support, feedback and development.

35. Supervisors lack skills in identifying work issues and problems, and in communicating these to staff as part of feedback to improve and develop. DOW would benefit from an overlay process (over the government system) that features individual work plans to be developed from corporate and section plans and operational work plans, as well as job descriptions and other relevant documents. Achievement progress and required development are then the subject of regular meetings between supervisor and staff member. This model supports plan achievement throughout DOW, rather than allowing plans to rest idle, and facilitates the creation of Annual Reports.

36. The PNG public service Department of Personnel Management (DPM) supports HRM policy and procedure for the public service. Notable amongst these is the “Gender Equity and Social Inclusion (GESI) Policy”, a key 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. The number and percentage of women employed in DOW is low and with very few women in senior or technical positions, and there is a weakness in gender mainstreaming in the 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 organisation’s work.

37. It is acknowledged by the DPM that lack of leadership is an issue right across the public sector. In response, the PNG Government launched the Public Service Ethics and Values-based Leadership Capability Framework in 2013. Leaders in DOW are required to provide high quality policy advice and decision-making regarding road network programs. As outlined in the Corporate Plan, they have a particular accountability to ensure progress is made towards 4 outcomes through delivery of outputs that contribute to the achievement of these general and high-level statements of outcome.

38. DOW leaders must be able to focus on these outputs as well as day-to-day operational management, and to work towards a shared vision and sense of purpose. Importantly, this requires them to lead and motivate their staff to achieve high performance in progressing the DOW priorities. In general, this is not happening in DOW.

39. A frequent complaint from public servants is the problem of service delivery being in the hands of politicians. There are continuing threats to strengthened public sector management in most countries, and these weaken the benefit to citizens of donor support and good government policies. In particular, organizations like DOW face problems of political interference in professional decision-making and corruption risks at all levels and stages of value transactions. This can create difficulties especially in agencies like DOW where demand for limited resources for roads management is subject to external pressure, where a multitude of needs requires prioritisation, where high finance decisions are required to meet local service demands, and where terrain and capability limit the quality of works provision. External pressure and lack of internal capacity limit DOW’s achievement of planned outcomes.

40. SHHIP will require capacity in project management, procurement, HRM, financial management, contract management, audit and reporting, and institutional leadership directed at service delivery improvement.
41. The public service in general and DOW in particular are moving forward on reforms. These include leadership initiatives, and if the scope of the public sector initiative is widened it could be of benefit to the higher echelons in the DOW and their potential talented individuals. The professional approach to corporate planning is an instance of this strengthening. Senior management of the DOW are committed to reforms and this is a strength that should definitely be leveraged.

42. As stated in the General orders of the National Public service: Departmental Heads are responsible under the Act for preparing and implementing their own staff development and training plans and for controlling career path planning and training in line with their respective Departmental staff and work needs.

43. Recruitment, training, promotion, deployment, incremental advancement, succession planning, and performance management are HRM functions that demand certain characteristics and abilities of managers. Managerial competencies must be developed to ensure these demands are properly met. In particular, it is recognized that with DPM assistance and guidance, the DOW must address issues in lack of merit-based HRM decisions, and in the management of workplace performance.

44. The Government has demonstrated commitment to principles of transparent and consultative government through the Open Government Partnership (OGP). The planning decisions and funding for road management are crucial to the economic interests and social development of citizens and road user groups. The DOW and NRA have an opportunity to participate in this initiative through the principle of increased community involvement and strengthened anti-corruption and public sector management measures.

45. Donor funded initiatives for strengthening roads and the sector represent the most significant opportunity for strengthening the DOW. Notable amongst these is the HRRIIP and the planned SHHIP, the benefits for which are discussed elsewhere. Lessons will be learned from the HRRIIP.

46. The TSSP commenced in 2007 as a long term commitment by the Australian Government to support the Government of Papua New Guinea to achieve a well-maintained transport infrastructure network. In the road sector, this includes support for maintenance, investment, capacity building and policy initiatives.

47. The program includes:

- Component 1: Priority land assets maintained, with end-of-program outcome that PNG agencies will be delivering a sustainable maintenance program with predictable PNG government funding to maintain 75 per cent of priority national roads in 'good' condition
- Component 2: Critical transport safety and security systems operating effectively, with end-of-program outcome that critical safety and security regulatory and service functions will demonstrate enhanced stability, competence and compliance to standards
- Component 3: Effective agency and sector engagement, performance and accountability, with end-of-program outcome that predictable multi-year government funding streams for transport asset maintenance are received, and that policy conflicts are resolved through enhanced engagement, agency performance and analysis. This component leads the strategic planning, design and implementation of performance management systems across the program and support leadership development, change management and high levels of performance through building capacity and supporting improved coordination between transport sector government agencies.
48. The TSSP is contributing to DOW in a number of ways, and these are well articulated through reference to the DOW Corporate Plan and its supporting documents and processes. Many of the weaknesses discussed above are being or are planned to be addressed with support from TSSP. These activities are comprehensively stated in the Implementation Plan (Part B) of the Corporate Plan as well as in the planning document listing planned activities in support of the four outcomes.

49. The World Bank is supporting DOW through the Papua New Guinea - PNG Road Maintenance and Rehabilitation Project II. The project development objectives are to: (i) improve road transport to project areas through providing satisfactory physical condition and safety in selected roads; (ii) strengthen institutional arrangements for road maintenance, including the participation of the private sector and communities; and (iii) enhance road-related economic opportunities for women. Its components are road/bridge rehabilitation, upgrade and/or maintenance, technical assistance for project management, design and supervision services, and capacity building, and contingency for disaster risk response.

C. SWOT Analysis

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>New organizational structure</td>
<td>High number of management layers</td>
</tr>
<tr>
<td>Corporate Plan modern and supported</td>
<td>Lack of technical and managerial capacity</td>
</tr>
<tr>
<td>Competent senior executive</td>
<td>Difficulty in retaining engineers</td>
</tr>
<tr>
<td>Experience in project management</td>
<td>No road safety planning support</td>
</tr>
<tr>
<td>Record of achieving annual expenditure</td>
<td>Poor workforce capacity</td>
</tr>
<tr>
<td></td>
<td>Independence of provincial staff too limited</td>
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<tr>
<td></td>
<td>Travel procedures limit staff productivity</td>
</tr>
<tr>
<td></td>
<td>Contractor administration is weak</td>
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<tr>
<td></td>
<td>Poor HRM impacting work quality</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSSP (DFAT project) support</td>
<td>Inefficient and confused structure with NRA</td>
</tr>
<tr>
<td>Other donors giving support</td>
<td>Political interference to decisions</td>
</tr>
<tr>
<td>Leadership role of DOW recognized by NEC</td>
<td>Unclear how IDA will be structured</td>
</tr>
<tr>
<td>Trend to increased transparency eg OGP</td>
<td>Variable commitment to road safety</td>
</tr>
<tr>
<td>Public service initiative in leadership dev</td>
<td></td>
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<tr>
<td>Government decentralization policy</td>
<td></td>
</tr>
<tr>
<td>Provincial administration access to funds for</td>
<td></td>
</tr>
<tr>
<td>road maintenance and development</td>
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</table>

D. Gaps

50. This capacity analysis is oriented to identifying issues that impact the DOW’s ability to manage the SHHIP and to identify capacity gaps that need to be filled for the good management of all necessary aspects of its implementation.

51. The gaps identified are largely focussed on the necessary operations as the facility design serves to “quarantine” processes from dysfunctional elements and to allow operations to proceed within the PMO. Hence, capacity development assistance and training will be largely PMO-focussed and located in Goroka.

52. The specific gaps will depend on the ability and numbers of DOW staff deployed to the PMO but include all aspects of the project work cycle, particularly in engineering design, procurement, works supervision, and contract management. With the safeguards function...
being located in Port Moresby, there will be a need for capacity building assistance to fill this gap. Other specialist areas will include road safety. The PMO will need support from senior management of DOW to ensure the continuity of its operations, and some specific services and interactions, notably with the ICT unit in respect to management reporting and function database development, the RAMS ability to support and incorporate SHHIP works.

53. There is a need in DOW for:

- Support to continuing the corporate planning process, and in particular gaining buy-in by middle level managers
- Assistance in support of implementation support and capacity development for reform in a number of strategic areas
- Assistance in implementing structural change, including appointing, retaining, and engaging talented staff and reducing the overall numbers of staff
- Organizing processes, decision-making and communications to cater to the high numbers of management layers
- Reducing layers as and when possible
- Strengthening the quality of employee supervision and accountability
- Improving workplace attendance, completion of work requests, meeting of deadlines, monitoring and reporting of technical and administrative, and managing staffing problems
- Strengthening the management and civil service culture
- Initiating further refinement of performance management
- Strengthening management systems, managerial capability, supervisory diligence, and countering ingrained systemic discouragement factors in operation.
- Continuing 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.
- Providing on-the-job training for procedural compliance, some specialist post graduate training, and competency development in certain knowledge areas
- Continued prioritisation of skill development in the core areas of project management, planning, programming and budgeting of the outputs, and safeguards management.
- Providing mentoring, on-the-job training, and application of competency development tools
- Strengthening corporate functions in their areas of responsibility, particularly building capacity and accountability for financial management, human resource management, ICT management
- Right-sizing the HRM function, ensuring accuracy and accessibility of records, and streamlining of processes to take advantage of process redesign and improved computerisation
- Continued roll-out of online access to the financial system
- Strengthened ICT function to lead improved communications, information storage, and management reporting
- 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
- Development of the technical capacity and independence at regional and provincial levels
- Better supervision of works to ensure that the needed and contracted works are properly undertaken and contractor payments are subject to documented performance against plan
- Improved road safety management in DOW by establishing a Road Safety Cell staffed with qualified professionals and supplied with modern equipment
- Management strategies to be put in place to strengthen workforce planning, performance management, and targeted competency development.
- Establishment of an organizational development capacity
- Strategies for engagement, communication and productivity improvement
- Use of employee “listening” survey techniques
- Use of “plan-cascading” performance management techniques

E. Recommendations

54. The SHHIP is being designed to:

- Restore, upgrade and effectively maintain the entire 430 km section of the Highland Highway between Nadzab and Kagamuga airports
- Increase the resilience to climate change and the safety of pedestrians and vehicle occupants
- Improve transport logistics and services between the provincial capitals
- Develop DOW managerial and operational capacity to deliver the program and sustain its benefits.

55. It has been proposed that the SHHIP PMO be located in Goroka, structurally as part of the Operations division but with a Steering Committee supported by a Technical Secretariat and responsible for strategic guidance, high-level decisions, and overall performance monitoring. There will be a Core Working Group responsible for all operations and deliverables. The PMO will be assisted by implementation support and capacity development assistance. While there are structural and capacity weaknesses in DOW operational and design areas, this proposed structure allows developments to go ahead with Steering Committee and high-level DOW authority and support.

It is recommended that:

The capacity development assistance focus should be designed to support implementation of SHHIP by ensuring that the planned developments and improvements are well managed and implemented. It is crucial that the country and its people gain maximum benefit from the works.

The PMO will require the inclusion of international experts, national specialists and DOW staff. There will be managerial and technical weaknesses impacting the PMO, and the consultants will support the effectiveness of SHHIP through direct involvement in processes and decision-making in their area of responsibility. They will also lead capacity building, largely strengthening system, competency and compliance levels.
Appendix 2: Sector Institution Authority and Structure

A. Introduction

1. A key element in implementing the Multitranche Financing Facility (MFF) for the Sustainable Highlands Highway Investment Program (SHHIP) will be efficient and effective coordination between the various entities, and in particular the avoidance of duplication and confused responsibility and the strengthening of clarity of role and authority.

2. It is evident that government has established formal entities or is about to embrace related structural initiatives, that collectively create a complex picture for the management of roads and bridges and which is likely to be relevant to the MFF SHHIP. Entities include:

- Department of Works (DOW)
- Department of Transport (DOT)
- Transport Sector Coordination, Monitoring and Implementation Committee (TSCMIC)
- National Roads Authority (NRA)
- National Road Safety Council (NRSC)
- Road Traffic Authority (RTA)
- District Development Authorities (DDAs)
- Provincial (regional) governments
- District (local) governments
- Open Government Partnership (OGP)
- Infrastructure Development Authority (IDA)

3. Analysis of historical and current structural arrangements shows that the many “players” (from government, donors, public service, business, community) have advocated different positions as “best practice” yet there has been no clear-cut ongoing resolution that reflects or embodies one particular advocacy or theory. Rather, decisions have been made that reflect the ebb and flow of politics, and of course this is to be expected in a pluralistic country. But the problem is that this has led to compromises and structural ambiguity which has led to uneasy relationships and unclear authority.

4. Decisions for change such as establishing agencies and defining roles, have been ambiguous, and contributing to this has been the varying strength of the economy, constrained at the start of this stage of governance change, cashed-up as extractive industries prospered, and again constrained as commodity prices dropped. It should be remembered that the independent PNG public service has recently turned 40 years of age, and this is quite young compared to many countries. It should be no surprise that the quality of governance for infrastructure maintenance and development has lacked consensus, focus, capability, sustainability, anti-corruption measures, restriction on political interference, acceptable standards in road infrastructure, and proper services rendered to citizens. Not the least of contributing factors has been the continuing low salaries paid to public servants in engineering and related professional positions compared to the salaries in the marketplace.

B. Institutional Framework

5. As the Executing Agency for the SHHIP, the DOW’s effectiveness is crucial. The quality, accountability and clarity of DOW’s governance characteristics will impact on its performance, and assessment and strengthening of its institutional and structural relationships are key factors.
6. Under the Public Services (Management) Act 1995, national departments such as the DOW (and DOT) must be established by the Head of State by notice in the National Gazette. Department function statements are determined by the Head of State after consideration by the National Executive Council.

7. The official DOW website states its responsibility as: The Department of Works (DOW) is the Papua New Guinea Government’s implementing agency for infrastructure in the country.

8. This public statement of role is expanded in the DOW Corporate Plan 2015-2019 (p. 11), with clarification that the DOW owns the PNG road network on behalf of the National Government, and is responsible for:

- Planning of the management and maintenance of the road network and implementing maintenance activities on the national network in conjunction with the National Roads Authority
- Establishing and enforcing standards for engineering and maintenance of roads and bridges throughout the country
- Ensuring that quality standards are maintained for the road network, including undertaking technical audits for road construction projects
- Oversight of building infrastructure in Papua New Guinea through establishment and management of Building Boards
- Providing technical assistance to provincial, district and local level governments to develop infrastructure

9. Guiding the DOW is the PNG Development Strategic Plan (DSP) 2010-2030 which includes 20-year targets to be achieved with coordination from the Department of National Planning and Monitoring. With the goal of establishing a transportation network that links all of PNG, it includes two targets to be achieved by 2030: firstly tripling the length of national roads to 25,000 kms, and secondly maintaining 100% of these roads in good condition. Cross-cutting strategies for substantial improvement in public sector management require further strengthening of public service institutions and improving accountability and transparency in service delivery. Indicators include strengthened institutional effectiveness and control of corruption with targets for both being in the top 50% in the world.

10. Envisaged in the 20-year DSP are action plans called Medium Term Development Plans (MTDP), and sector agency plans are required to be consistent with these MTDPs. The current MTDP covers the period 2016-2017, and subsequent MTDPs will cover 5-year periods. The current MTDP notes (p. 51) that road infrastructure “for the national highways should be delivered by a dedicated technical unit under the Department of Works where all funding is combined into a comprehensive 5 to 10 year outlook.” This is an important statement of institutional structure policy.

11. Included are priorities for road infrastructure such as increasing the total length of national and provincial roads, increasing the proportion of roads that are in good condition, improving the assessment of major rehabilitation and new construction projects, maintaining existing investments in road infrastructure through road maintenance, encouraging a quality-based focus on new road construction through integrated construction and maintenance contracting arrangements, and improving road safety infrastructure.

12. The official Department of Transport (DOT) website states its responsibility as transport infrastructure policy and planning:

- It is the lead agency in formulation of policies and planning of transport infrastructure projects, administers transport legislation’s (Act, associated Regulations and
numerous international conventions etc) and ensuring compliance to safety, security and related environmental standards.

13. The Department is the lead agency in the sector and works side by side with other transport sectors in the development and upkeep of infrastructures which are:

- Department of Works - responsible for or building/implementing transport infrastructure projects (roads & bridges)
- Civil Aviations Safety Authority – responsible for the aviation industry operations
- National Maritime Safety Authority – responsible for marine regulations and navigational aids
- PNG Ports – responsible for ports
- National Roads Authority – responsible for road maintenance; and
- Road Traffic Authority – responsible for road safety...

14. Guiding the DOT is the National Transport Strategy (NTS) consistent with the DSP and MTDP and serving as a guide for the transport sector for the next 20 years. The NTS is supported by a Medium Term Transport Plan (MTTP) with policy actions and investment priorities. The NTS notes:

15. A review of previous planning and service delivery in the sector together with the emerging patterns and growth in demand have highlighted the need for improvements to the sector institutions, processes and accountability. Underpinning these improvements are:

- More rigorous and effective prioritisation in the allocation and application of limited resources to get the best return for the country
- Providing adequate financial resources and building capacity in both the government and industry; and
- Adhering to agreed plans and priorities, monitoring progress in delivery and undertaking prompt remedial actions.

16. Key goals for the NTS of relevance to the DOW are:

- Restore the national transport network
- Fully fund maintenance as far as possible from user charges
- Develop new infrastructure where economically viable and within financial and capacity constraints
- Strengthen the capacity of Government transport organisation

17. The NTS further emphasises the need for better structures to gain the improvements needed to achieve the goals. It notes that “structural reforms will be undertaken to support performance improvement by providing clearer mandates for operation, improved alignment of agency functions and rationalising the number of agencies.” The Strategy notes that these structural reforms will require improved governance and accountability frameworks to maximise better use of resources, and it is particularly stated that transport sector agencies need clearly defined roles and appropriate structure.

18. It has been recognized that the sector is complex because of a large number of interconnected agencies, and a Transport Sector Coordination, Monitoring and Implementation Committee (TSCMIC) has been established to co-ordinate transport planning and investment and to address difficulties and constraints encountered in implementing plans. The committee is chaired by the Secretary of DOT, and each transport agency is represented by its Secretary/CEO.
19. Following recognition of poor performance of the DOW and support for a structure more removed from political interference, the National Roads Authority (NRA) was established through a 2003 Act, giving the NRA the objective:

- To raise funds for the maintenance of public roads; and
- To ensure the efficient preparation of effective annual road maintenance programmes; and
- To ensure that all routine, specific and emergency maintenance of roads and road rehabilitation and reconstruction funded by the Authority are executed in a transparent, effective and efficient manner, in order to optimise the contribution of road assets to the economic and social development of Papua New Guinea.

20. The NRA structure therefore combined responsibility for maintenance with management of the Road Fund and this combination of authority has been maintained since then. Furthermore, there has never been sufficient government support for user pays revenue for the Road Fund, and periodic transfers from consolidated revenue have been inadequate and unpredictable. Some years after the Act, the NRA was given responsibility through gazette for maintaining 2142.5 km in 2009. This allocation included 1,100 km of road outside the Highlands network.

21. The National Road Safety Council (NRSC) has broad responsibility for road safety in PNG. A report of the NRSC (“Papua New Guinea Road Safety Review”, 2011, p. vi) stated:

Road safety management roles typically expected of a lead agency such as the NRSC include the coordination of activities, support for the funding of wider initiatives, promotion, legislative reviews, monitoring and evaluation, research and ensuring a focus on results (i.e. the actual reduction in the number of people killed or injured in a car accident) by partner agencies. Awareness of such road safety management requirements is currently limited in PNG, with scope for much improvement. Sustainable local knowledge and skills in this specialised area will only be achieved by ‘hands on learning’ through appropriate technical assistance over a period of time.

22. The Road Traffic Authority was set up more recently, created by amalgamating existing disparate elements from NRSC and DOT, and is still in the process of establishing its staffing and operations. The 2014 Act states:

The objective of the Road Traffic Authority is to manage and administer the regulation, safety and efficient use of land transport throughout Papua New Guinea.

23. It should also be noted that government policy and some funding structures recognize merit in decentralized governance. This means that management of some sectors has national, provincial and district levels of decision-making. The DOW organizational structure includes provincial units and these are co-located with provincial government structures. At district level, the government created District Development Authorities (DDAs) through the 2014 District Development Authorities Act, facilitating local ownership of assets, contracting, and expenditure management. As long as DDA’s comply with the Public Finance (Management) Act, a DDA Supply and Tenders Board can be established in the district. Access to constituency funds allows expenditure on road assets at local level, and the 2016 ADB report “Wok Bung Wantaim” highlights mutual benefit from combining donor and constituency funds for integrated work on a single district asset.

24. Funds are provided directly to regional / provincial administrations for local-level roads. These funds are hard to manage and audit, and there is little genuine capacity in road management in these isolated functions. This does not duplicate the responsibility of DOW or
NRA as they are minor roads, but there is a dilution of capacity that inhibits the spending of these funds wisely. There is a need for support for road maintenance capacity at regional and provincial levels.

25. The OGP is an international multilateral initiative established to secure concrete commitments from governments to promote transparency, empower citizens, fight corruption, and harness new technologies to strengthen governance. Amongst the stated values is:

   **We uphold the value** of openness in our engagement with citizens to improve services, manage public resources, promote innovation, and create safer communities. We embrace principles of transparency and open government with a view toward achieving greater prosperity, well-being, and human dignity in our own countries and in an increasingly interconnected world.

26. PNG became an accepted partner of Open Government Partnership (OGP) in 2015, and is in the process of developing its OGP National Action Plan (NAP). While still in draft form, the PNG NAP is likely to move the government further in terms of transparency and community involvement in or oversight of the public procurement process in infrastructure development.

27. Indications are that the Government is in favour of establishing the Infrastructure Development Authority (IDA) in order to “take ownership of NEC Decisions on improving infrastructure project procurement and implementation in an efficient manner, on time, within budget and of the quality or standard required" (Presentation to PNG Advantage Infrastructure Conference, 2014). The Draft IDA Bill states that the IDA will “oversee the procurement and implementation of a strategic infrastructure project which has a capital investment value of more than K50 million or that is nominated by the National Executive Council”. An IDA Project Office has been established and identified over 50 infrastructure projects. The legislation does enable the IDA to fund maintenance, but the focus is likely to be on large projects. This of course will depend on funding being available or accessible.

C. **Assessment**

28. Good practice in road maintenance and rehabilitation is well documented (for example “Road Funds and Maintenance”, ADB, 2003). Some of the key principles for good practice applicable in PNG are:

- Develop capacity of road agencies;
- Establish a road fund;
- Separate the road fund from the road works agency managing road maintenance and rehabilitation;
- Set up Board comprising government officials and road user representatives to determine allocations from the fund;
- Appoint a small secretariat to manage affairs of the fund;
- Establish road tariffs (access and use fees) as the only source of funding for road maintenance;
- Set tariffs to ensure revenue for fund matches required maintenance and rehabilitation costs; and
- Ensure that the road works agency operates the work program efficiently and effectively on behalf of users.

29. The following issues are apparent from analysis of structure and implementation reports:

   - Duplication of effort;
- Combining of Road Fund and maintenance functions;
- Poor framework for Road Fund;
- Inadequate and unpredictable resourcing of road maintenance and rehabilitation;
- Lack of capacity; and
- Lack of transparency, accountability and road user involvement.

30. Twenty years ago, the roads structure was uncomplicated. Authority and responsibility were vested in a single Department of Works and Transport, while funding was controlled by the Department of Finance (DOF). Dividing this department into the DOW and DOT did not alter the fact that standards were poor: “… the DOW for a range of reasons … had been unable to discharge its responsibilities effectively or efficiently. There had been a failure in the practice of management in the Department. A range of systems and procedures intended to facilitate the planning and control … had been neglected and not applied. There had been a near collapse in the financial management system used in the Department and prudent standards of expenditure monitoring and control had only little been used, information technology had been inadequate, and equipment had been allowed to deteriorate. Staff productivity was low, and there was only limited attention to staff development” (“Road Authority Development Project”, ADB, 2008, p 3).

31. The performance of the DOW has improved over recent decades but there remains problems to be addressed. This will be evident once assessments planned for the MFF SHHIP are completed. Likely issues are in the speed of procurement, in planning and approving works without political interference or malfeasance, in monitoring the works by contractors and dealing with contract breaches, in ensuring necessary safeguard processes are enacted efficiently and without causing unnecessary delays, and in productivity improvements through strengthened staff performance management and clarified structuring of institutions. Capacity development assistance under SHHIP will be beneficial indeed essential for that 10-year program, but should also address the fundamental capacity gaps throughout the DOW and related institutions.

32. There is also likely to be an opportunity for program operations to align with provincial structures and constituency funds. There are service delivery and decision-making bottlenecks across the levels of government, and the decentralized system of decision-making operates in an hierarchical manner with all levels of government suffering from bottlenecks when problems occur at a single level. This will require strong project management and subnational counterpart contributions may provide additional flexibility to address process issues and funding needs in a mutually beneficial way.

33. Through official Gazette, the NRA was given responsibility for maintaining 2142.5 km in 2009, including 1,100 km of road outside the Highlands network, but in fact, the NRA has never achieved that mandate. The 2009 NRA Annual Report stated that 280 km were put to tender that year but didn’t report contracting the works. It also reported that 17 staff were employed including 5 engineers, plus an additional project engineer.

34. Under the Highlands Region Road Improvement Investment Program (HRRIP) (2007-2016), 1400 km were to be improved by DOW and the entire network of 2500 km were to become the responsibility of NRA for maintenance by 2016. However, by 2012 NRA had only taken on responsibility for 48.5 km and by 2015 this had only risen to 135.2 km.

35. Prior to the establishment of the NRA, funds for maintenance were provided to DOW by the Department of Finance (DOF). Although increased in recent years, the level of funding was generally inadequate to meet need, and the timing of the releases by MOF were unpredictable. Maintenance work was therefore under-funded and difficult to plan, and roads deteriorated.
36. The plan for the NRA was to access adequate and regular funding through road user charges including a levy on fuel, thereby taxing mobility, and a vehicle registration fee, thereby taxing access. Funds raised by the NRA were to be paid into a Road Fund and road maintenance costs were to be paid from the Road Fund. In fact this revenue-raising was never implemented in a way that met need, and periodical and unpredictable transfers from consolidated revenue have made up the bulk of the Road Fund. A user pays model has never been properly implemented, and funding has neither been adequate nor reliable. Further, the NRA has been slow to make use of provided funds.

37. The current DOW Corporate Plan (2015-2019) states:

“A Memorandum of Understanding was agreed 12 August 2010 with the National Roads Authority. In 2015, this Memorandum will be revised and further developed to capture:

- Responsibility for establishing and implementing road engineering and maintenance standards;
- Funding arrangements and appropriate approaches for NRA when they have insufficient funding to maintain their allocated sections of the road network;
- Joint approach to prioritising maintenance on the road network; and
- Approaches to declaring roads as national roads and transferring road maintenance responsibilities between road agencies.

“The Memorandum of Understanding will be reviewed and updated every second year, commencing in 2015, to ensure it remains relevant and reflects current priorities for the Government of Papua New Guinea, Department of Works and National Roads Authority.”

38. Despite this laudable intent, there is little evidence of effective coordination between DOW and NRA. There is also indication of confusion regarding what part of the classified national roads falls under NRA’s responsibility. This confusion includes there being a mix of responsibility for roads in the same geographical jurisdiction. Hence, there is no clear accountability for maintenance of national roads. This is a clear breach of the current MTDP statement (see Section 11) that road infrastructure should be delivered by a dedicated technical unit under the DOW where all funding is combined. It is also inconsistent with the NTS requirement to improve the sector institutions, processes and accountability with more rigorous and effective prioritisation in the allocation and application of limited resources (see Section 14).

39. Under the NRA Act, there are 15 functions to be performed by the NRA once they are gazetted. The NRA has commenced the first two functions: operate a Road Fund and establish resources and an organisation. Many of the planned 15 functions overlap with the long-standing DOW functions, notably maintaining and managing the Road Asset Management System, developing annual maintenance plans, carry out routine, specific and emergency maintenance, deliver road improvement and restoration, and perform effective management of contracts awarded for the execution of road maintenance works and rehabilitation and reconstruction projects. This formula for duplication is unsustainable and in a country the size of PNG is an inefficient use of already limited human and financial resources.

40. There is however useful technical capacity in the NRA and there could be an expanded role for the NRA in supporting regional and provincial administrations in road maintenance. There is little common or professional practice in the maintenance of these regional or local-level roads. Capacity and common procedures could be built in the roads maintenance cycle by building and promulgating a business model covering design, procurement, contracting,
supervision, and management as well as guidelines for standard price range, expected standards, and holding a contractor accountable.

41. If nothing else, it is good government practice for their institutional roles to be clear and distinct. Institutional role ambiguity may be linked in developing countries with opposition to democratic reforms. There is an opportunity for implementation of this planned change during SHHIP.

42. The management of the Road Fund is a legitimate function for the NRA, and this does not infringe on the role and authority of the DOW. The role of the Board in allocating funds for maintenance through a Road Maintenance Plan is also quite appropriate. The breach of good road maintenance practice as stated above (See Section 26) is the lack of separation of the Road Fund from the DOW managing road maintenance and rehabilitation. Hence the NRA should cease having any role in road maintenance and rehabilitation. There is also a need for amendment to the NRA Board structure to include road user representatives so as to better determine allocations from the Road Fund that align with community needs and perspectives.

43. A report of the NRSC (“Papua New Guinea Road Safety Review”, 2011, p. vi) stated: “Awareness of … road safety management requirements is currently limited in PNG, with scope for much improvement. Sustainable local knowledge and skills in this specialised area will only be achieved by ‘hands on learning’ through appropriate technical assistance over a period of time.”

44. The management of the Road Fund is a legitimate function for the NRA, and this does not infringe on the role and authority of the DOW. The role of the Board in allocating funds for maintenance through a Road Maintenance Plan is also quite appropriate. The breach of good road maintenance practice as stated above (See Section 26) is the lack of separation of the Road Fund from the DOW managing road maintenance and rehabilitation. Hence, the NRA should cease having any role in road maintenance and rehabilitation. There is also a need for amendment to the NRA Board structure to include road user representatives so as to better determine allocations from the Road Fund that align with community needs and perspectives.

45. The report of the NRSC (“Papua New Guinea Road Safety Review”, 2011, p. vi) forms part of the background for the RTA, which has now been established as a special-purpose entity, but progress in appointing and developing staff is slow. Road safety is identified as a significant issue for PNG. The RTA should be supported in its development to strengthen road safety. This institution does not infringe on the role or authority of the DOW, and hence is deemed a cooperatively structured institution.

46. The Government is committed to decentralized governance and the DOW structure supports this policy. At district level, the DDAs can facilitate local ownership of assets, contracting, and expenditure management. There is mutual benefit from combining donor and constituency funds for integrated work on a single district asset, and there is potential for this through the SHHIP PMO. The potential for this should be explored, and capacity in the DOW should be increased to support this practice.

47. The Open Government Partnership (OGP) is an initiative that is relevant to good practice in road management. The planning decisions and funding for road management are crucial to the economic interests and social development of citizens and road user groups. There is an opportunity to align strengthening of the NRA as stated above to focus on the Road Fund managed by the Board with the principle of increased community involvement to be included in the National Action Plan (NAP). It will also be appropriate to reference in the NAP that there are anti-corruption and strong public sector management measures to be enacted in all aspects of road management in DOW.
48. If the IDA set up is finalized by the Government, it will be crucial that any new road construction should be managed with proper involvement of the DOW. This is the specialist agency in PNG for roads maintenance and development, and it already has the responsibility, network, staff, systems, and planning structure to support road construction initiatives. It is also essential that any new roads be planned by DOW and IDA working together so that there is sufficient planning and funding for normal maintenance and rehabilitation at least for a 20 year period after construction.

D. Recommendations

It is recommended that the ADB support the institutional management changes as discussed in this paper, and in particular that:

- The NRA cease any role in operational contract procurement and management and that existing contracts be transferred to the DOW as soon as possible.
- Staffing and role for a Secretariat be identified in the NRA with clear responsibilities to manage the affairs of the Road Fund and the Board.
- NRA staff not involved in the Road Fund Secretariat be transferred to the DOW or RTA, or be made redundant.
- The Board membership rules be broadened to include community representatives.
- Develop capacity in NRA, RTA and DOW under SHHIP through learning by doing activities alongside the specialists contracts under PMO.
- Support strong project management that facilitates decentralization when appropriate through subnational interactions, e.g. with DDAs in order to reduce decision blockers and access counterpart contributions.
- Support the PNG planning for OGP membership by demonstrating strengthened transparency and accountability of the Road Fund and community involvement in the NRA Board with oversight of raising revenue from road users and planning allocations.
- Any new road construction through IDA or other body be approved only if a maintenance plan including allocation of funding is assured and if there is transparency and cooperation with the DOW.