

PNG Economic and Social Infrastructure Program (ESIP)

Design Document

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Acronyms

| | |
|--------|--|
| ADB | Asian Development Bank |
| AHC | Australian High Commission |
| AQC | Annual Quality Check |
| CCDA | Climate Change and Development Authority |
| CMS | Construction Management Services |
| DDA | District Development Authority |
| DFAT | Department of Foreign Affairs and Trade |
| DNPM | Department of National Planning and Monitoring |
| ESIP | Economic and Social Infrastructure Program |
| EU | European Union |
| GESI | Gender Equity and Social Inclusion |
| GII | Gender Inequality Index |
| GoA | Government of Australia |
| GoPNG | Government of Papua New Guinea |
| HDI | Human Development Index |
| HEPF | Health and Education Procurement Facility |
| HIES | Household Income and Expenditure Survey |
| ICCC | Independent Consumer and Competition Commission |
| ICT | Information Communications Technology |
| IDA | International Development Association |
| IDD | Investment Design Document |
| IFC | International Finance Corporation |
| IndII | Indonesian Infrastructure Initiative |
| JICA | Japan International Cooperation Agency |
| KCH | Kumul Consolidated Holdings |
| LTA | Long-term adviser |
| MDB | Multilateral development bank |
| M&E | Monitoring and Evaluation |
| MEL | Monitoring, Evaluation and Learning |
| NDOH | National Department of Health |
| MSC | Most significant change |
| NEROP | National Electrification Rollout Program |
| NICTA | National Information and Communications Technology Authority |
| NTN | National Transmission Network |
| NWSHA | National Water, Sanitation and Hygiene Authority |
| ODA | Official Development Assistance |
| OECD | Organisation for Economic Cooperation and Development |
| PRIF | Pacific Regional Infrastructure Facility |
| PMNEC | Department of Prime Minister and National Executive Committee |
| PMO | Program Management Office |
| PMU | Project Management Unit |
| PNG | Papua New Guinea |
| PPL | PNG Power Limited |
| PPPs | Public Private Partnerships |
| SDG | Sustainable Development Goal |
| STA | Short-term adviser |
| STEM | Science, technology, engineering and maths |
| STP | Skills transfer plan |
| TA | Technical Assistance |
| TEU | Technical Enabling Unit |
| ToC | Theory of Change |
| TSCMIC | Transport Sector Coordination, Monitoring and Implementation Committee |
| TSSP | Transport Sector Support Program |
| WASH | Water, Sanitation and Hygiene |
| WB | World Bank |

Executive Summary

Analysis and rationale for investment

Papua New Guinea (PNG) faces challenges in providing quality infrastructure that meets the needs of its growing population and allows it to fulfil its growth potential as a maturing lower middle-income economy. PNG, like many other countries across the Asia Pacific, has a significant infrastructure deficit. This constrains economic growth and access to services.

There is strong justification for Australian assistance to address these challenges given the importance of infrastructure in driving improvements in economic and social development. Investment in infrastructure aligns closely with the Government of Papua New Guinea's own focus on infrastructure investment as set out in the Alotau Accord II and the forthcoming Medium Term Development Plan Three (MTDP 3). This presents an opportunity for Australia to support PNG to address its infrastructure financing gap by supporting improved planning, prioritisation and delivery of infrastructure.

Joint work on this key political priority through an Economic and Social Infrastructure Program (ESIP or the Program) will reinforce Australia's growing economic partnership with PNG while acting as a catalyst for economic growth and development. It will also strengthen and improve donor coordination and alignment with the GoPNG's key priorities. Australia can contribute expertise and experience which complements and strengthens the efforts of the Government of PNG (GoPNG) and development partners.

The core focus of the program will be to deliver priority capital projects that will deliver tangible outcomes in key sectors as agreed with GoPNG. It will seek to work through partner systems wherever possible. Importantly, provision of targeted technical assistance and expertise will be explicitly targeted to support delivery of these priority projects.

The Program

The long term goal of the Program is to improve the prioritisation, quality, and sustainability of infrastructure investment in PNG. The Program will work in different subsectors at the project, sectoral and national levels. It will leverage project-level infrastructure delivery while creating opportunities for deeper engagement in sector-wide planning and policy. This is expected to enable the identification and resolution of broader national level policy, financing and planning reforms and partnerships necessary to support improved delivery of high impact projects. The Program will seek to influence change across these levels through the following key mechanisms: infrastructure delivery, including project management, budget and financing advisory services; technical assistance and capacity development for improved planning and prioritisation; and high level engagement in support of institutional and regulatory reform.

The initial phase of the program is designed as an eight year investment (4+4 year extension if warranted).

In the initial phase of assistance, the key outcomes are:

- An increased number of capital projects are being effectively planned, managed and implemented by the relevant GoPNG agencies.
- ESIP focus sectors have evidence based prioritised infrastructure plans and processes for their implementation and review.
- A legislative and administrative reform agenda exists to improve policies, regulatory structures and planning for infrastructure investment.

The energy, telecommunications, and water and sanitation sectors are proposed as potential sectors of focus, alongside existing sectors such as health and education. Australia and PNG will jointly identify and negotiate selection of initial major projects and sectors through the ESIP governance arrangements and ongoing sector design meeting. The choice of projects will be based on the readiness of investment proposals, commitment of stakeholders in the sector, potential for reform, and social and economic impacts.

Governance and management arrangements

Alignment with GoPNG systems and GoPNG's development agenda is key to ensuring the success of the program. The governance arrangements for the Program will support and align with GoPNG systems and sector structures.

Formal accountability for ESIP's strategic direction and decision making will be ensured through engagement between the Minister Counsellor, Australian High Commission and the Secretary of Department of National Planning and Monitoring. This can be elevated as necessary to the Australian High Commissioner and Chief Secretary through their ongoing regular engagement.

Sectoral governance mechanisms are also a key mechanism for ensuring the Program aligns with the Government of Papua New Guinea's priorities. They will provide a mechanism to support improved donor coordination and alignment. Sectoral governance arrangements will be focused on bringing together key GoPNG line and central agencies, donors, multilateral development banks and other development partners. The sector coordination function will be led by the GoPNG for each sector in which the Program engages. The Program will utilise existing coordination mechanisms, including formalising informal mechanisms, where possible.

Implementation Arrangements

The key hub for program implementation will be a Program Management Office (PMO) embedded within a GoPNG central agency – possibly DNPM. This will provide technical advisory services for central and line agencies for whole-of-Government policy development, prioritisation, financing and coordination. The PMO will work with counterparts to improve the enabling environment for infrastructure investment at the national level, to help create the conditions for better private sector investment, commercial financing of GoPNG projects, and optimal use of GoPNG resources for economic and social benefit. This will require strong stakeholder and relationship management capability coupled with outstanding technical knowledge across key infrastructure markets.

The approach to the program also requires a deep level of engagement within the selected line agencies with primary responsibility for the selected sectors. To support this, a Lead Sector Specialist will be embedded within key line agencies, developing a work plan agreed with the line agency to identify and address constraints in the policy, planning and financing systems and structures at the sectoral level. This will include focusing on improving the planning and prioritisation of infrastructure investments and capital works programs at a sectoral level. This necessarily involves ensuring the integration of gender equity and social inclusion across infrastructure subsectors to ensure investments benefit girls and women as well as men and boys. With escalating extreme weather threatening the sustainability and affecting maintenance requirements of infrastructure in PNG, climate change resilience and disaster risk reduction will also be a key objective of ESIP.

The Program will also provide support for major capital works projects as a key vehicle for underpinning and informing broader engagement with agencies and stakeholders. As needed for specific capital works projects, a project management unit will be established by the line agency, with support from the Program as needed. The level of support required will vary depending on the requirements of individual projects – however it could range from the provision of upstream advisory support to GoPNG through to direct delivery of capital projects by the Program itself. The Program will have the capacity to engage short term specialists and consultants as necessary to support project preparation and delivery.

A. Introduction

1. Papua New Guinea (PNG) faces challenges in providing quality infrastructure that meets the needs of a growing population and a maturing lower middle-income economy.¹ Greater investment in infrastructure² is required to support economic growth and access to services.
2. Under the PNG Australia Aid Partnership 2015-17, Australia committed to spending 50% of aid in PNG on infrastructure by 2017.³ In addition to major projects such as the Transport Sector Support Program (TSSP), ANGAU hospital, and the Leadership and Governance Precinct, Australia has made substantial infrastructure contributions in health, education, gender, and law and justice programs over the past decade.
3. This design document outlines the rationale and approach for a program that aims to address the underlying challenges for optimal use of investment available for infrastructure. It seeks to address the “build, neglect, rebuild”⁴ cycle by improving alignment of recurrent funding, service delivery functionality and workforce planning in planning processes. This requires a strong focus on rigorous prioritisation and adequate socio-economic analysis. It also requires strengthening of the institutional, governance and regulatory environment to improve access to private sector, development bank and commercial funding.
4. Improving infrastructure investment and reform of national policy, planning and political processes is a long term endeavour. The Economic and Social Infrastructure Program (ESIP or the Program) draws on the experience of the transport sector program,⁵ as well as Australia’s experience across the Pacific⁶ by adopting an incremental and adaptive approach. ESIP will use specific major capital works projects as vehicles for engaging at a sector level with agencies and stakeholders to identify and address the policy and planning systems and structures needed to improve prioritisation and infrastructure management. A strong emphasis will be placed on improving the maintenance of existing infrastructure through the prioritisation of rehabilitation of existing infrastructure over new capital works, where feasible, and the increased use of life cycle approaches to asset management. ESIP will also engage at the national level with central agencies on the enabling environment for infrastructure investment, to help create the conditions for better private sector investment, commercial financing of Government of PNG (GoPNG) projects, and optimal use of GoPNG resources for economic and social benefit.
5. Focus sectors for capital works projects will be subject to further consultation, feasibility analysis and detailed design. Proposed new sectors are energy, telecommunications, and the water and sanitation sectors alongside existing sectors such as health and education. Australia and PNG will jointly identify and negotiate selection of initial major projects and sectors, based on the readiness of investment proposals, commitment of stakeholders in the sector and potential for reform and relative social and economic impacts. ESIP will work with Australia’s existing aid investments in PNG to provide complementary technical assistance and support for infrastructure policy and planning, and will have the capacity to provide direct project management support for delivery of critical infrastructure as required.

¹ World Bank definition for lower middle income: GNI per capita between \$1,026 and \$4,035. PNG GNI per capita was \$2,160 (2014).

² ADB 2016, *Closing the Infrastructure Gap*.

³ PWC, 2015 *National budget commentary*.

⁴ PRIF (2013) *Infrastructure Maintenance in the Pacific: Challenging the Build-Neglect-Rebuild Paradigm*, p.80

⁵ The Transport Sector Support Program, TSSP, operating in three phases since 2002

⁶ Through the Pacific Regional Infrastructure Program, a tripartite arrangement with NZ and the ADB.

B. Analysis and strategic context

Country context

6. PNG is an emerging lower middle-income country that experienced sustained growth from 2007-15. However, this has not translated fully to equitable development for its citizens, particularly women and girls. The high-levels of real economic growth that ranged from 5% to 13.3% have now slowed to 2% in 2016 with 2.5% forecast in 2017.⁷ With relatively low global commodity prices continuing to limit revenues, the short-term outlook is for continued low growth, higher inflation with 7.5% estimated in 2017-18, and higher debt levels currently at 29.4% of GDP.⁸

PNG Government priorities and policy context

7. The PNG Government has identified infrastructure investment as a key priority in its medium and long term planning documents. *Vision 2050* plans for “the development of high quality infrastructure to ensure that there is effective service delivery” with a priority for construction of high quality transport and communication networks to create economic corridors. The Public Investment Budget Strategy allocates 25% of spending to infrastructure.⁹ The *Medium Term Development Plan* outlines strategies to improve road transport, air transport, water transport, utilities (water, sanitation and postal), information and communications technology.¹⁰ The PNG Government has also set targets to increase electrification across PNG to 70% by 2030 through its Medium Term Development Plan. Investment in infrastructure aligns closely with the GoPNG’s focus on infrastructure investment as set out in the Alotau Accord II.

8. Public and private infrastructure is a fundamental pre-condition for economic growth.¹¹ Public infrastructure such as roads, ports, markets, telecommunications, energy, and water and sanitation, create the conditions for the economy to operate effectively. Providing access to markets for goods and services, livelihoods for primary production, and jobs for related services. Social infrastructure such as schools and health facilities ensure that people can access services for human development. Primary health care for women and children ensures that households can be productive, and education provides pathways for employment and entrepreneurship. Improved economic infrastructure can improve safety and reduce the time burden of labour intensive domestic tasks such as collecting water and fuel which has particular benefits for women. With growing populations, one trillion US dollars are required each year to 2020 to improve pro-poor quality infrastructure in the Asia Pacific region.¹² It is equally important that this growth is green growth that contributes to a more sustainable development path that generates fewer carbon emissions.

9. Australia shares this commitment to infrastructure investment as a driver of sustainable development. *Australian Aid* identifies two key development outcomes – strengthening private sector development and enabling human development – with infrastructure as one of Australia’s six investment priorities. Australia will “work with partner governments to strengthen the policy and regulatory environment for infrastructure investment, and increase the aid program’s infrastructure portfolio over the coming years as a key plank of the Government’s commitment to scale-up the aid for trade portfolio”.¹³ The *Strategy for Australia’s Aid Investment in Economic Infrastructure* identifies Australia’s key priorities as: i)

⁷ Real economic growth 2007-15 from the ANU *PNG Budget information database* (March 2017); 2016-17 from the ADB *Asian Development Outlook: Transcending the Middle-income Challenge* (2017).

⁸ Inflation estimates from the ADB *Asian Development Outlook: Transcending the Middle-income Challenge* (2017). Debt to GDP ratio from the PNG Department of Treasury *2017 National Budget, Volume 1* (2016), with the limit set by the Financial Responsibility Act – below 30%.

⁹ PNG Vision 2050, p13

¹⁰ Papua New Guinea Medium Term Development Plan (2011-2015).

¹¹ ADB 2016, *Closing the Infrastructure Gap*.

¹² ADB 2016, *Closing the Infrastructure Gap*

¹³ DFAT, 2015, *Australian aid: promoting prosperity, reducing poverty, enhancing stability*, p 13

mobilising the private sector to finance and deliver infrastructure to meet the needs of the region; ii) infrastructure services to facilitate private sector and human development and promote women's participation and empowerment; and iii) promote infrastructure to enhance trade and connectivity through the region.

10. Climate change is an important and growing priority for GoPNG, particularly in relation to managing the risks to critical infrastructure and delivering climate resilient low carbon growth. Climate change is included as a cross-cutting issue in the *Development Strategic Plan (DSP)*, 2010–2030, and as a pillar in Vision 2050. Under the Paris commitments, GoPNG aims to have a 'carbon free' electricity sector by 2030, conditional on donor support. GoPNG is actively engaging with the Green Climate Fund to access finance for infrastructure to meet these commitments. The energy sector and mitigation generally have emerged as particular priorities in recent years. PNG's climate change priorities also include water and food security – in response to the severe 2015 El Nino drought. Projected increases in flooding and associated vector and water borne disease will also need to be managed. Infrastructure for improving the climate resilience and security of water supply and sanitation systems is an urgent priority.

Situation Analysis

11. PNG was ranked 118 out of 167 for the quality of its trade and transport infrastructure by a 2016 World Bank study.¹⁴ There is a need to increase investment in critical infrastructure in order to support economic growth and access to services.¹⁵ GoPNG has sought to address this through the establishment of a Public Investment Program in 2013 that focuses on large scale investments in economic and social infrastructure. This has included Gerehu General hospital (\$207 million), Mount Hagen General Hospital (\$207 million), Enga Hospital (\$207 million) Goroka Hospital (\$77 million), Duran Farm Housing Project (\$90 million), Mount Hagen Roads and Sewerage (\$45 million), Western Pacific University (Phase 1 – \$20 million), PNG's National Broadband Network (\$270 million), and the Lae Port Redevelopment (Stage 1 – \$310 million).

12. However despite these large scale investments, the financing gap to meet PNG's needs significantly exceeds levels of domestic revenue and bilateral donor resources. For example, an additional US\$130 million is needed every year to 2030 for PNG's water and sanitation infrastructure alone,¹⁶ and recent estimates suggest the financing gap for health infrastructure in PNG could be at least US\$800 million.¹⁷

13. Development partners play an important role in infrastructure development in PNG but in some ways contribute to the fragmentation. As well as Australia, the World Bank, Asian Development Bank, International Finance Corporation, New Zealand, Japan, China and the European Union support projects with GoPNG with varying scope and arrangements. GoPNG is also gearing up to access finance from the Green Climate Fund, which is emerging as an important mechanism for climate resilient and low carbon energy and water security infrastructure. However, donor support to central government for policy, planning and budgeting across infrastructure sub-sectors is limited, with the majority of support focussed on delivery of specific capital projects rather than the underpinning institutional and regulatory frameworks that enable such investment.

Development Problem

14. Infrastructure investment in PNG to date has not always been optimally prioritised, planned, financed and sustained. A sustained, comprehensive and multi-faceted approach is required to address this. The challenges that ESIP seeks to address are as follows:

¹⁴ World Bank (2016) *Connecting to Compete 2016 – Trade Logistics in the Global Economy*, https://wb-lpi-media.s3.amazonaws.com/LPI_Report_2016; PNG was also ranked 159/190 in 2016 on the ND-GAIN index for adaption and readiness to the challenges of Climate Change <http://index.gain.org/ranking/vulnerability/infrastructure>.

¹⁵ ADB 2012, *Papua New Guinea critical development constraints*; Jones, S 2006, *Infrastructure Challenges in East and South Asia*.

¹⁶ World Bank 2013, *Water supply and sanitation in Papua New Guinea: turning finance into services for the future*

¹⁷ PNG Department of Health 2015. *The mid-term review and joint assessment of the PNG National Health Plan 2011-2020*.

15. ***There is a need to strengthen capacity within government*** to undertake the technical work necessary to prioritise, plan, implement, monitor and evaluate infrastructure investments, within the complex decision-making context.

16. ***There is a need to focus on maintenance of existing infrastructure.*** Capital projects are not generally planned on the basis of whole-of-life approaches to investment.¹⁸ A focus on maintenance and rehabilitation of existing infrastructure, coupled with a focus in any new investment on affordable solutions and budgeting on a whole-of-life basis, will ultimately yield better returns on investment.

17. ***The ease of doing business and regulatory regime for private sector investment is a critical constraint for leveraging private sector financing.*** There has been limited private sector participation in infrastructure markets in PNG to date. While Public Private Partnerships (PPPs) offer considerable potential as a means of bringing additional finance for capital projects in economic infrastructure sectors (e.g. energy, telecommunications), considerable work is needed to develop the necessary conditions that protect the public interest while attracting the level of interest from the private sector to ensure the most effective and efficient use is made of their potential role.¹⁹

18. ***There is a need to strengthen environmental and social safeguard capacity and culture.*** Good design and implementation of projects requires environmentally sensitive and climate-smart approaches. Without very strong safeguards, investments may harm people or the environment, compromising planned outcomes or leading to delays and increases in costs.

19. ***There is a need to strengthen capacity for complex project delivery*** amongst all stakeholders, including the public sector, advisory services and contractors. This includes the design, procurement, construction, quality assurance, supervision, regulation and monitoring of major projects.

Justification and rationale for Australian engagement

20. There is strong justification for Australian assistance in infrastructure in PNG given PNG's infrastructure financing gap and the importance of infrastructure in driving improvements in economic and social development. Importantly it aligns closely with the Government of Papua New Guinea's own objectives as set out in the Alotau Accord II. Joint work on this key political priority will reinforce Australia's growing economic partnership with PNG while acting as a catalyst for equitable growth and development. The rationale for Australia's engagement in this sector is that:

- Infrastructure is a high policy priority of both PNG and Australia. This Program will further move the bilateral relationship beyond development assistance to a focus on driving growth and economic opportunities for mutual benefit.
- Australia has relevant experience in planning and coordination in a federated system of government, with access to the required technical and specialist expertise.
- Australia has relevant experience in working with PNG counterparts on institutional reform and capacity building.
- Australia has strong private sector, commercial and international institution linkages with interests in infrastructure development in PNG.
- Australia has an important convening role with other development partners in PNG given its history and the scale of its aid program.

¹⁸ More analysis is provided on challenges for infrastructure investment in the Pacific is provided in the ESIP Design Background Paper "Financing Public Infrastructure", David Bray, Adam Smith International, 2017.

¹⁹ More on constraints and opportunities for private sector financing is found in the Background Paper "Financing Public Infrastructure", David Bray, Adam Smith International, 2017.

Lessons learned

21. Australia and other donors have been engaged in substantial infrastructure programs in the Pacific. The key lessons are as follows:

22. **National level infrastructure planning and prioritisation generates political buy-in and better decision making.** National planning processes, which demand formal socio-economic analysis and consultation with stakeholders and the private sector, have been the basis for reform of financing and political decision making. Under the Pacific Regional Infrastructure Facility (PRIF), six Pacific island countries (excluding PNG) have developed plans that are country owned and led. This has enabled national conversations on the importance of strategic asset management and whole of asset life funding to be considered in decision making and budgeting, and deeper engagement with potential financiers and stakeholders important to the execution of potential projects. As governments face increasing competing pressures, established coherent and rational planning processes can play an increasingly important role in maximising the utility of scarce resources.²⁰

23. **Capacity development and institutional strengthening takes time and close engagement.** The third phase of assistance in Indonesia (INDII, now KIAT) demonstrates the importance of working with partner country systems to be able to engage with the political economy, and working to build capacity of systems and institutions through policy, planning and regulatory reforms. Direct capital works construction can be used as a vehicle to identify and address required system constraints and build capacity within stakeholder organisations. In PNG, the Transport Sector Support Program (TSSP) has had success adopting this approach, coupling support to improve asset management systems and processes with the delivery of priority capital projects. Taking a longer term approach of providing technical assistance and leveraging funds from other sources (domestic, international and private sector financing) has been shown to have a wider impact than utilising funds directly for specific capital works projects.

24. **Up-front support for project delivery is important.** Governments in developing countries rarely have the capacity to undertake the technical analysis required in different sectors, nor to manage the design, procurement and contracting processes for major projects. Donor assistance in the early stages of a program, and for new projects, has been valued and manages risk. Experience in Africa also highlights that donor assistance provided during the initial stages of major infrastructure projects – when the risk is highest – also helps attract external financing.²¹

25. **Programs need flexibility and capacity to solve problems when they arise.** Both IndII and PRIF rely on ready access to advisory resources to engage with partner governments throughout the whole process of identification, planning, procurement and delivery, across a wide range of technical areas. This makes possible the timely resolution of constraints, and taking advantage of momentum and new opportunities. Programs are not planned in detail for the year, but are adaptive and responsive to requests. This is necessary so that programs can adapt to changing circumstances. However, adaptive programs also require very experienced and capable program management, as well as technical advisers who can respond appropriately. The governance and management arrangements will be developed to support, value and reward this adaptive management approach.

26. **Take a long term view.** The successful IndII, PRIF and PNG TSSP programs have come at nearly ten years of continued effort, with much mixed success early on, and many changes to design, management and delivery arrangements. Expectations for early successes should be modest and sustained commitment will be required to achieve end of program goals. To manage the risk associated with this, ESIP will need to identify key opportunities to begin engagement, with a flexible and adaptive design, and maintain close

²⁰ PwC (2014) Infrastructure development in Asia Pacific (APEC) – The next 10 years, October 2014, <<https://www.pwc.com/gx/en/capital-projects-infrastructure/assets/infrastructure-development-in-asia-pacific.pdf> >

²¹ Brookings Institution (2017) Foresight Africa: Top priorities for the continent in 2017, 9 January 2017 <https://www.brookings.edu/multi-chapter-report/foresight-africa/>.

oversight, feedback loops and iteration across the whole spectrum of design, governance and management, and finance arrangements.

27. **Despite a strong policy imperative, gender and social inclusion is often weak in infrastructure programming.** Effective prioritisation of competing projects and financing requires good socio-economic analysis which takes account of the gender impacts of various alternatives. Both PRIF and KIAT design and reviews note the weak attention given to gender and social inclusion issues throughout the prioritisation, analysis, design, procurement, construction and monitoring and evaluation processes of aid programs. Addressing gender and social inclusion throughout the program will be critical. The Program will also need to consider accessibility issues in both infrastructure outcomes and the process of consultation.

Australia's Investment in Infrastructure in Papua New Guinea

Australia has a long history of investing in infrastructure across Papua New Guinea. In alignment with the Government of Papua New Guinea's focus on infrastructure driven development as set out in the Alotau Accord II, Australia has committed to progressively increase its portfolio of infrastructure investments towards 50% of its development cooperation budget in PNG. ESIP will be a key mechanism for supporting this scale-up and builds on a large existing suite of investments. Details of key recent investments are outlined below.

ANGAU Hospital: Under the 2013 *Joint Understanding between Australia and Papua New Guinea on Further Bilateral Cooperation on Health, Education and Law and Order*, Australia committed to funding 50% of the costs of the redevelopment of ANGAU Hospital. In accordance with this agreement, the redevelopment of ANGAU Hospital is currently progressing.

University of Papua New Guinea (UPNG) and Institute of Public Administration (IPA): Australia is supporting the construction of large scale education infrastructure across the UPNG and IPA campuses. This includes the construction of major new facilities including a new School of Business and Public Policy, new lecture theatre and new student services building at UPNG and a new administration building and learning resources centre at IPA.

Transport: The \$350 million PNG – Australia Transport Sector Support Program (TSSP) commenced in 2007 as a 15-20 year commitment to support the Government of Papua New Guinea (GoPNG) to achieve a well-maintained transport infrastructure network. Australia's investment in transport infrastructure is a key enabler of economic growth and directly contributes around 50% of Australia's aid for trade and private sector development support in PNG. It is also a core component of Australia's economic diplomacy agenda in PNG.

Incentive Fund: The A\$100 million Incentive Fund is a high profile performance grant program. It works with high performing organisations across PNG to support them to increase their service delivery capacity or to increase their contribution to economic growth. The Incentive Fund works with subnational government, churches, civil society and the private sector. A minimum of 50% of grants are reserved for infrastructure developments; however in practice the majority of grants are utilised by organisations to develop or refurbish small scale health and education infrastructure.

Health and Education Procurement Facility: Through the \$300 million health and education infrastructure program, Australia supported the delivery of small scale infrastructure, including school kits and health clinics, across PNG. This program delivered a large volume of minor projects and small-scale works in priority areas identified by the Government of Papua New Guinea. This program ended in late 2016 and projects are currently reaching the end of their defects liability period.

The lessons learned from the above portfolio of investments have been incorporated in the key principles that underpin ESIP. The Program represents an evolution of these existing programs away from a focus on downstream project delivery towards a systems approach focussed on improving the institutional and regulatory settings in which infrastructure investments are planned, financed and delivered.

Principles

28. As a result of this analysis and drawing on lessons learned, the following principles underpin the strategy and approach adopted for the Program design and will be important to achieving the outcomes and mitigating risks for ESIP.

29. **Deliver impact projects that help to build the economy and use these as a starting point for systems improvements.** The Program will include high quality technical expertise only where it makes sense to build the necessary enabling environment and to assist with the direct delivery of capital works projects that will be supported by ESIP. ESIP will work with PNG's own line agencies and utility companies, and other development partners or the private sector to deliver targeted infrastructure projects.

30. **Work with GoPNG structures, policies and systems to improve long term institutional capacity.** It is fundamental to long term success to ensure ownership and engage deeply with the political economy rather than operate in parallel. ESIP's governance structures have been designed to ensure a focus on systems strengthening and institutional capacity building for policy, planning and financing is a central feature of the program rather than a sub-component. ESIP will seek to develop internal capacities of partner agencies as planning and prioritisation activities proceed collaboratively. A core part of systems strengthening will be a focus on identifying policy and regulatory barriers to infrastructure planning outcomes and developing ways to address these.

31. **Equity will drive the underlying culture and approach of the Program.** Equity should always be important in infrastructure prioritisation, planning and financing, and needs to become a fundamental driver of decision making, within the Program and ultimately within the GoPNG system. Gender equality and social inclusion are particularly important in PNG given that the economic growth of recent years has not translated into benefits for the majority of the population, in terms of service delivery or economic well-being, and gender inequality remains a significant challenge. Accessibility of infrastructure will be considered, drawing on DFAT's *Accessibility Design Guide: Universal design principles for Australia's aid program*.

32. **Maintenance and sustainability are a core focus of the Program.** The constraints to good infrastructure planning in PNG relate to the construct-neglect-rebuild cycle and insufficient consideration of maintenance and recurrent funding needs for new infrastructure. ESIP will seek to integrate an enhanced focus on maintenance and recurrent funding into PNG planning processes. A whole of asset-life approach will be adopted throughout the Program to drive this culture shift. All new investments will be required to factor in recurring and maintenance costs. The prioritisation process for each sector will incorporate a stocktake of existing assets and will prioritise maintenance or rehabilitating existing assets wherever possible.

33. **Start small and focused, and learn from failure and success.** Managing expectations in the early stages of the Program could be a challenge given the aspirations of stakeholders and the needs across the country for infrastructure. Specific infrastructure projects for consideration in an ESIP context are yet to be identified by GoPNG agencies and other development partners and detailed feasibility analysis has yet to be undertaken. Noting this, ESIP explicitly adopts a phased approach commencing with collaborative long term planning and prioritisation process in each sector. This will allow analysis to identify what projects present the greatest opportunities to leverage learning and stakeholder buy-in. The extent and depth of engagement for each sector will also be carefully considered in early planning stages to ensure that resources are targeted in those areas where the greatest opportunities lie.

34. **Work in a complementary way with other development partners.** The infrastructure needs of PNG are extensive, and different development partners; the multilateral development banks (ADB, WB, and Asia Infrastructure Investment Bank) and other bilateral donors (particularly China, Korea, Japan) all have interest in, and funding available for, different sectors. There is significant potential for Australia to co-finance and co-invest with other development partners, adding value to each other's work and working in a joined-up way to influence whole-of-PNG Government policy and practice change.

C. Investment description

35. In the long term, the Economic and Social Infrastructure Program (ESIP or the Program) aims to *improve the prioritisation, quality, financing and sustainability of infrastructure investment in PNG*. Eventually this would involve the GoPNG making infrastructure investment decisions on the basis of prioritised plans and socio-economic analysis, and delivering equitable benefits to women and men from well managed and sustainably financed projects, including their ongoing maintenance and recurrent costs.

36. Australia's engagement in the transport sector, over three phases of fifteen years, has shown that a long term approach will be required. This initial phase of the Program is designed as a four + four year investment. The Program will build a body of work from its early entry points in this adaptive design framework, with whole-of program Annual Plans and an updated Monitoring and Evaluation framework each year. This will include project level risk and environmental and social safeguards management plans.

37. In the initial phase of assistance (4+4 years), the end of investment outcomes are:

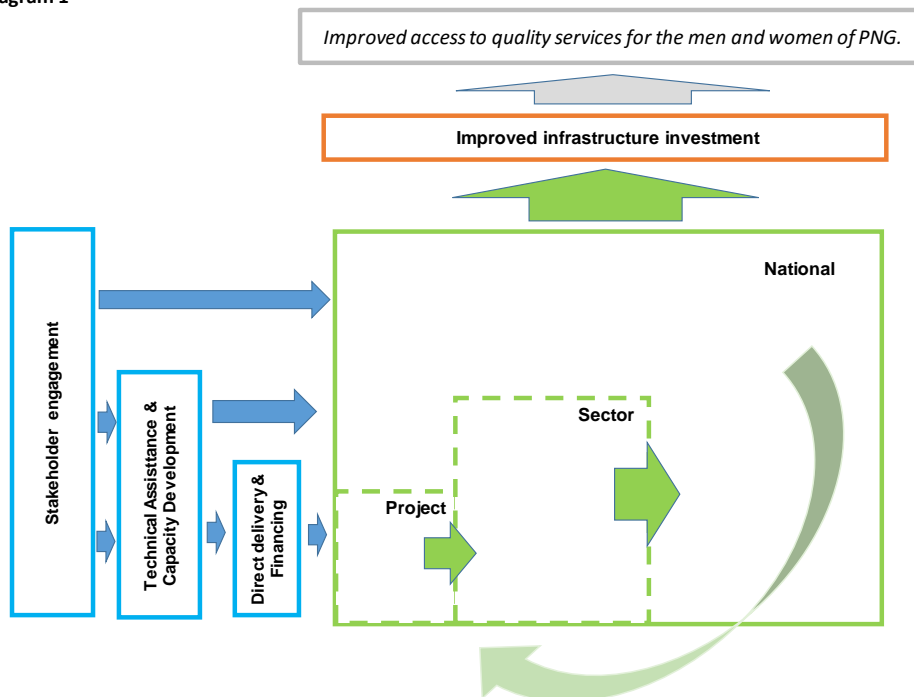
- A legislative and administrative reform agenda exists to improve policies, regulatory structures and planning for infrastructure investment
- ESIP focus sectors have evidence based prioritised infrastructure plans and processes for their implementation and review
- An increased number of capital projects are being effectively planned, managed and implemented by the relevant GoPNG agencies

These outcomes contribute to the longer term strategy and theory of change, outlined below.

Strategic approach

38. The strategy for the Program is an iterative, adaptive design approach, using key entry points to influence broader longer term change, represented in Diagram 1.

Diagram 1



The Program will work simultaneously at the project, sector and national levels. It will use project-level activities to create opportunities for deeper engagement in sector-wide planning and policy, and enable the identification and resolution of broader national level policy, financing and planning reforms necessary for sustained long term change.

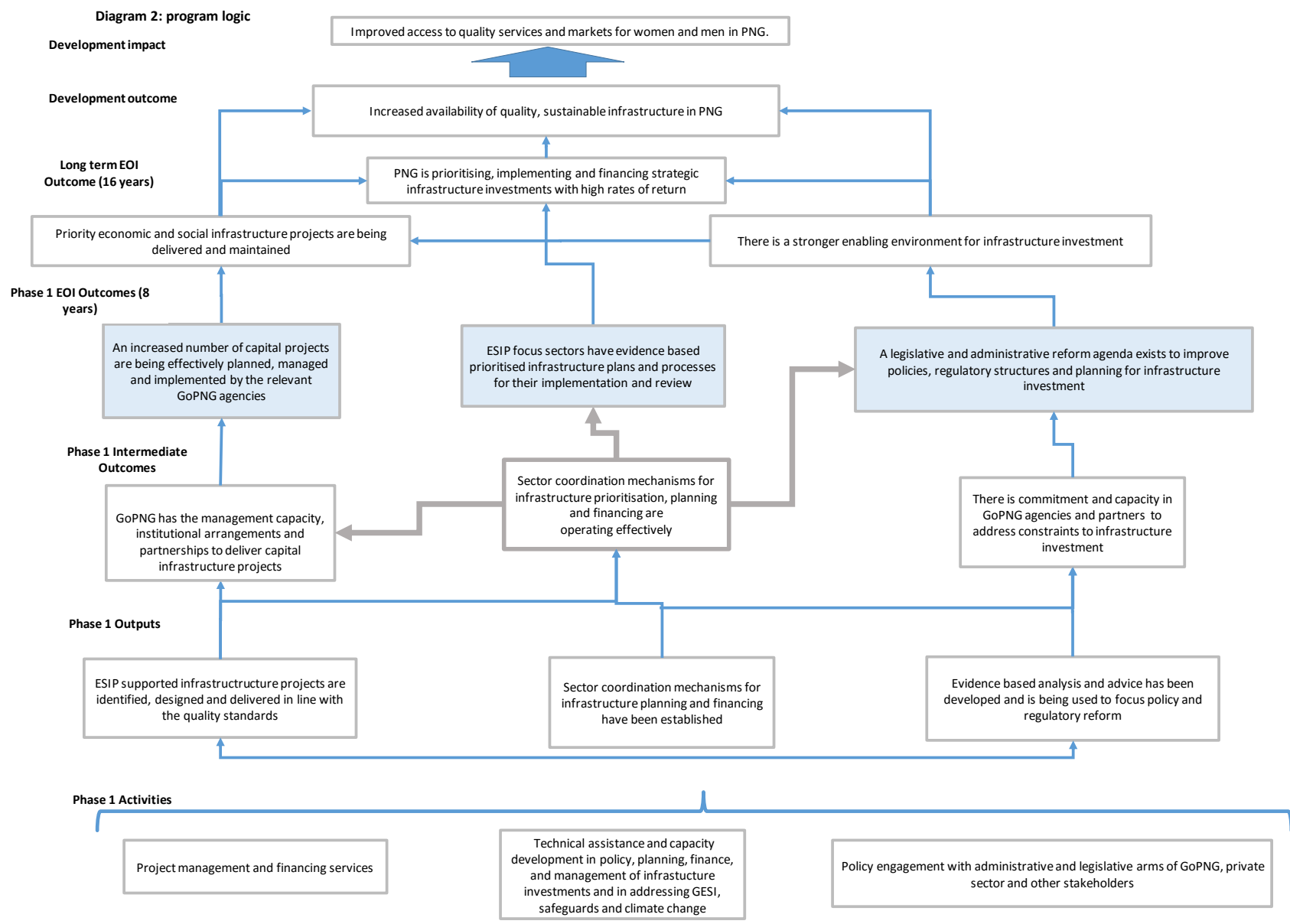
39. The Program will engage in three different ways at these three levels, using entry points to build a program of work over time.

- At the project level,²² the entry point will be the analysis, financing and development of specific identified infrastructure projects agreed with GoPNG. The Program will offer a range of project management and financing services for the design, procurement, construction and oversight of projects, including the establishing of Project Management Units for major projects. The Program will seek to co-invest in projects managed by the MDBs or other development partners, while also seeking to leverage funding from partners for its own projects. The projects serve as both demonstrations of good practice and entry points for engaging with partners and coming to a shared understanding of barriers to delivery in specific infrastructure sub-sectors.
- At the sector level, the entry point will be the identification of key priority sectors with the GoPNG and establishment of sector coordination mechanisms (similar to Transport Sector Coordination, Monitoring and Implementation Committee (TSCMIC) in the transport sector) that bring together GoPNG line and central agencies to address sector specific challenges. Technical assistance and capacity development support will be provided through Lead Advisers in each sector, with the aim of developing prioritised infrastructure plans on behalf of GoPNG for each sector of focus.
- At the national level, DFAT and the program team will engage with central agencies, development partners and external stakeholders to support improved institutional and regulatory settings for infrastructure investment. This will include identifying constraints to infrastructure investment in PNG as well as working to strengthen whole-of-Government collaboration, policy and legislative arrangements.

Expected outcomes and program logic

40. The program logic model of Diagram 2 provides a summary of the key results hierarchy of the design theory of change. There are important vertical and horizontal linkages of this theory of change, so that the project level interventions support and complement the work at sector and national level, and the national level and sectoral level interventions likewise support the project level activities and outcomes.

²² "Projects" when related to infrastructure investments, may refer to one major individual capital works project, or a program of smaller scale works, managed as a discrete "project".



Pathway one – project level

41. At the project level, support and investment in specific capital works including high impact infrastructure projects will have an immediate effect on the quality of infrastructure for delivery of economic and social benefits. When coupled with the complementary activities of sector coordination and technical assistance in central and sector agencies, the expected outcome from project investments is the strengthening of GoPNG institutional arrangements and management capacity for major capital programs.

42. Logic: As well as an output contributing to economic and social benefits, project level investments will contribute to mobilising sector stakeholders and building the capacity of GoPNG systems. The projects serve as vehicles to assist in collaboratively identifying the policy and regulatory barriers to infrastructure investment and building the buy-in to address them.

43. Evidence of success: Central agencies would be collaborating within selected sectors in planning and budgeting processes for strategic asset management; the GoPNG would have effective internal coordination and functional responsibilities for management of major infrastructure programs with sufficient resources and technical capacity to fulfil responsibilities; and GoPNG project plans address climate change, GESI, environment, social and workplace safety safeguards. They would also include ongoing maintenance and whole-of-life recurrent budgets.

44. Assumptions: For these outcomes to be achieved, there needs to be careful selection of projects to align with program objectives. GoPNG leadership and commitment to delivery of high quality projects and support from sector stakeholders will be required, as well as strong political interest so that lessons can be learned and extrapolated to other projects and sectors and policy and regulatory changes adopted.

Pathway two – sector level

45. At the sector level, specialist technical support and sector coordination mechanisms are expected to drive the development of prioritised infrastructure plans for PNG based on sound socio-economic analysis. Rational evidence based funding allocations will then be based on those plans. The establishment of sector coordination mechanisms is expected to help identify the policy and regulatory constraints for infrastructure investment, and identify the capacity development needed for agencies to manage infrastructure planning, financing and delivery effectively.

46. Logic: With stakeholder involvement, demands for quality planning and prioritisation will increase, and decision making is expected to improve from the administrative and executive levels of government. Prioritised infrastructure plans will ensure that decisions on which infrastructure to fund are evidence based and ultimately increase the quality of infrastructure and the social and economic benefits and returns. Appropriate prioritisation and improved quality will also make seeking alternative funding options available and reduce risk and economic loss. Efforts to strengthen sector coordination complement and contribute to other program outcomes; better quality capital works projects and stronger GoPNG systems and enabling environment for infrastructure.

47. Evidence of success: Sectoral working groups/coordination mechanisms would be established with GoPNG leadership, development partners and private sector participation. Secretariat functions to support the sectoral groups would be established. Sectoral coordination groups would meet regularly as scheduled with appropriate and meaningful agenda and meetings would be documented. Focus sectors would have infrastructure plans based on sound socio-economic analysis and central agencies would be collaborating with selected sectors in planning and budgeting processes for asset management and maintenance.

48. Assumptions: For this logic to operate, the right stakeholders with representation at the right levels are required to be able make decisions and influence change, and the sector coordination mechanism needs to attract sufficient political support from central agencies and the Executive, with a mandate to recommend priorities and policies which are supported. GoPNG Agencies and external parties (development partners, private sector) must also have sufficient common interests to make sector coordination a collaborative effort.

Executive and administrative leaders also need to have interests in transparency and collaboration. The quality of the analysis and recommendations made to the coordination mechanism need to stand public scrutiny to be effective.

Pathway three – national and Central Agency level

49. At the national level, specialist technical advisors working in central agencies, as well as those in sector agencies, will develop evidence based analysis and advice and identify solutions to the barriers and constraints identified. This will be coupled with policy dialogue from DFAT to increase commitment and interest of GoPNG agencies in addressing policy and system constraints to infrastructure investment and quality.

50. Logic: Central planning and budgeting and reforms will be linked to and draw on project and sector level work including the implementation of specific capital projects which will help identify the needed reforms. Increased commitment to reforms coupled with specialist expert assistance and improved systems will lead to improved policy, regulatory structures, and planning for infrastructure investment. This will lead ultimately to a stronger enabling environment.

51. Evidence of success: A legislative and administrative reform agenda would be progressing. There would be political and institutional commitment to instituting whole of government planning, budgeting and prioritisation processes and the GoPNG would be engaging effectively with private sector and external financial institutions (commercial and development banks).

52. Assumptions: Projects must be of a suitable quality and delivered successfully enough to leverage broader commitments to policy changes. There must be commitment to policy and institutional reform by GoPNG. Australia must have sufficiently strong engagement with PNG at all levels of Government. The program must be able to attract high quality specialist advisors and have the flexibility to change people or approaches if needed.

Delivery approach

53. The activities delivered under the Program will be planned and managed under three streams of work, which contribute to outcomes at project, sector and national level. These are:

- ***Policy engagement with administrative and legislative arms of Government, private sector and external stakeholders with interests in infrastructure investment.***

A core adviser team will work closely with DFAT Infrastructure Section at the Australian High Commission to build and maintain effective working relationships with key stakeholders. Participation in sector coordination mechanisms, in national level planning processes, and in project level supervision all create opportunities to identify constraints to infrastructure investment, and to work with colleagues to propose ways to address them. The ongoing analysis of the operating context and identifying key GoPNG counterparts, is key to identifying and responding appropriately to opportunities. The core team and national level advisers, will be embedded within GoPNG central agencies.

- ***Technical assistance and capacity development in policy, planning, finance, and management of infrastructure investments.***

The core team will be supplemented by long term advisers in each selected sector embedded in the lead sector agency providing a wide range of technical expertise. They will be supported by specialist advisors through a TA pool and the ability to procure special skills in highly specialised areas as required and at short notice (e.g. in PPP project preparation or sector specific engineering design). The Program will also consider flexible contract options to ensure it attracts the highest quality technical experts.

- **Project management and financing services on demand as agreed.**

A standing capacity for project management will be available in the core team, and individual Project Management Units will be established upon demand for individual capital investments. These may be related to Australian aid finance, or may be supporting the investments made by other development partners or GoPNG financing arrangements.

Sector identification

54. The sectors for engagement, and the level and nature of that engagement, will be confirmed by DFAT and the GoPNG drawing on sector analysis undertaken by the Contractor in a phased manner through the inception period. Selection will be based on:

- Alignment with the priorities of the PNG-Australia Partnership
- Potential to address PNG's constraints to growth or to catalyse improvements in human development indicators
- Commitment and interest from GoPNG in pursuing sectoral reform
- Potential for Program to influence broader system and policy change
- Interest and engagement from other stakeholders (development banks, private sector)
- Potential to leverage private and donor financing to effect sustainable change

55. Discussions with counterparts to date suggest energy, telecommunications and water and sanitation sectors have a significant need for support coupled with a significant appetite for reform. These sectors will be subject to further analysis and consideration by the managing contractor. The Program will retain the flexibility to scale up or down in sectors on the basis of need and level of partner buy-in. For example, it is likely that support will also be provided to social infrastructure sectors where DFAT already has a strong presence (e.g. health or education). However it is not expected that the same level or 'depth' of engagement will be given to each sector. Implementation plans for these sectors are currently under preparation and will be incorporated into ESIP as relevant. Future support in these sectors will be a function of the extent to which infrastructure is emphasised versus other priorities in these sectors.

Project Selection

56. Projects for ESIP support will be identified from the broader sector prioritised infrastructure plans for PNG and subject to agreement key stakeholders in GoPNG. Sector prioritised plans will be agreed with counterparts through the relevant sectoral steering committees and the ESIP Steering Committee. Projects identified for Australian funding will be included in ESIP's sector work plans and the Annual Plans. In assessing whether a project should be supported by ESIP, the following criteria will be used:

- Clear links between the project proposed and the sector and whole of program level outcomes
- Ability for the project to influence policy, address significant barriers or implement critical reforms
- Opportunity for engagement with and to leverage funds from other partners (banks / private sector / other development partners)
- Partners that have demonstrated willingness to engage with the Program and work in a best practice way (including by undertaking necessary analysis to guide program design, integrating GESI and managing safeguards effectively)
- The project has a demonstration effect and lessons are applicable in the sector and more broadly
- The project demonstrates value for money

57. To ensure appropriate oversight of what are potentially significant investments, ESIP draft sector work plans will be incorporated in the annual ESIP work plan and presented for endorsement by senior officials from both PNG and Australia. Tasking notes to the managing contractor will be formalised and signed off by the appropriate DFAT delegate in line with the PGPA Act prior to any work commencing. Once commenced, all projects will be assessed through the quality criteria and monitoring questions set out in the M&E Manual.

58. A Program Management Office (PMO) will be co-located with a Papua New Guinea central agency (TBD), and jointly staffed with GoPNG officers, to strengthen whole of Government coordination, capacity

building opportunities, and to promote government ownership and sustainability. Project Management Units (PMUs) will be supported by the Program as and when needed and agreed with GoPNG for specific capital projects. These may be PMUs financed by the Program on behalf of either other development partners or the GoPNG. Alternatively, the Program may provide financial or advisory support to PMUs established by the GoPNG or the Development Partners, where these exist and are functioning effectively. The Program Management Office will also have a standing project management capacity to respond to specific needs of the Australian aid program in PNG, for technical support and construction design, planning, procurement and delivery services for infrastructure activities, as needed (activated through tasking notes).

59. DFAT will play a direct role in political and policy engagement across the program, participating in GoPNG-led sector coordination mechanisms, engaging with other development partners on policy and project issues, and working collaboratively with the GoPNG on major initiatives.

60. A Managing Contractor will be procured by DFAT to manage the adviser team and the Project Management Office functions. The Contractor and DFAT will be required to work closely and collaboratively in the functional overlap of responsibilities related to engagement with central and line agencies. The Contractor will be managed by DFAT but will be jointly accountable to Australia and Papua New Guinea.

61. A Gender Equity and Social Inclusion Strategy for infrastructure policy, planning and implementation will be developed by the Program, and similar policies and guidelines will be developed with central and line agencies related to their specific sector responsibilities. Environmental and social safeguards and climate smart approaches will be embedded within activities of advisers, and all agreed work plans.

D. Implementation arrangements

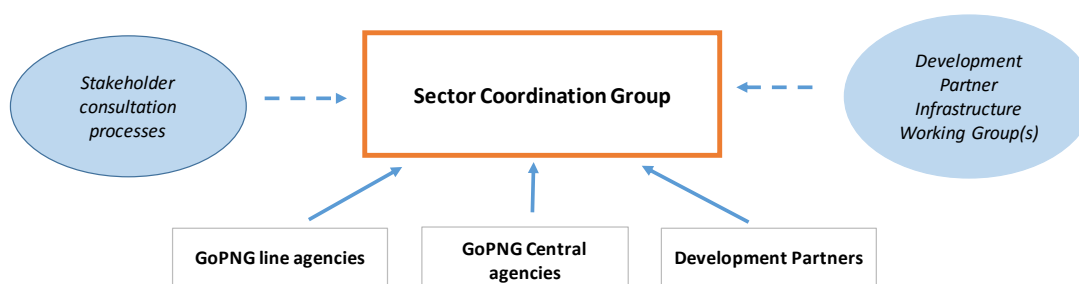
Governance arrangements

62. Alignment with GoPNG systems and GoPNG’s development agenda is key to ensuring the success of the Program. The governance arrangements for the Program will emphasise alignment with GoPNG systems and sector structures wherever possible.

63. The mechanism for formal direction setting and oversight of the Program will be the ESIP Steering Committee co-chaired by the Minister Counsellor, Australian High Commission and the Secretary of DNPM Chief Secretary. They will endorse the ESIP annual work plan, including program strategy and any large scale capital investments Australia identified in the work plan.

64. The GoPNG led sectoral level steering committees to be established in the early phases of the program will also be a key program governance mechanism. At the sector level, governance arrangements will be modelled on the experience of the Transport Sector Coordination, Monitoring and Implementation Committee (TSCMIC) which brings together the key GoPNG line and central agencies, donors and development partners and other key stakeholders. The sector coordination function will be led by the GoPNG for each sector in which the Program engages. This will utilise existing coordination mechanisms, including formalising informal mechanisms, where possible. This approach seeks to harmonise donor engagement in the sector, reduce fragmentation and ensure PNG is able to direct donor contributions to where they are most effective.

Sector Governance



65. The Terms of Reference, membership and participation, and structure of meetings and secretariat support will be determined by each sector coordination group as it is formed by the GoPNG. The Program will offer secretariat support for the establishment and ongoing functions of the coordination mechanisms, bearing in mind the importance of ownership of the GoPNG agencies and sustainability.

66. Apart from these formal mechanisms, ongoing and regular interaction between DFAT, the relevant line agencies and the Managing Contractor will play a key role in guiding the lower level decision making necessary to administer and run the Program. This will include regular monthly meetings involving all program stakeholders, as well as the organic interactions that occur when working together on joint priorities.

Management arrangements

67. The approach to the Program requires a deep level of engagement within the selected line agency with primary responsibility for the selected sectors, supported by a flexible management mechanism providing technical and project management advisory services. A Lead Sector Specialist will be embedded within each line agency. They will develop and work to the sector work plan for ESIP engagement, in consultation with the line agency. They will also support the sector coordination mechanism established and, longer term, work with

partners to develop a prioritised infrastructure plan or pipeline for the sector for PNG. Further long term and short term specialists will be deployed in accordance with the work plan. As needed for specific capital works projects, a PMU will be established by the line agency, with support from the Program as needed. This may involve full or co-funding support, or limited advisory services according to the needs of individual projects.

68. These implementation arrangements will be supported by a PMO. The role of the PMO will be to provide technical advisory services for central agency and whole of government policy development, prioritisation, financing and coordination; policy and practice support to line agencies (through Lead Sector Specialists), particularly in environmental and social safeguards, gender and social inclusion, climate smart planning, accessibility and consideration of universal design principles, and project management services for specific construction activities. A Technical Assistance Pool of Specialists will be available to GoPNG and DFAT subject to request by GoPNG to support delivery of construction works. The TA pool will include personnel with expertise and experience in the following areas:

- Socio-economic and financial cost benefit analysis
- Infrastructure policy, including planning, pricing and regulation
- Legislative reform and legal drafting
- Multilateral and commercial financing instruments
- Environmental and social safeguards
- Climate change analysis
- Gender and social inclusion
- Accessibility and universal design principles
- Project planning, procurement, program management, project management and contract administration
- Infrastructure asset management and maintenance
- Quality assurance and risk management
- Transaction advisory services, including project preparation for PPPs

69. The PMO will have a core team of four people each with distinct functional responsibility in the program (as shown in the above diagram):

- **Managing Director:** central agency engagement and coordination, partnership facilitation between GoA and GoPNG, leadership of the program.
- **Director of Planning and Policy:** providing technical oversight to the Lead Sector Specialists and responsible for oversight of the quality of the sector work plans, including from a GESI and environmental and social safeguards perspective.
- **Director of Projects:** responsible for the procurement and project management services for major capital projects and supporting line agencies in establishment of individual PMUs as required. Will also oversee construction projects delivered by the Project Manager.
- **M&E and Safeguards Senior Adviser:** responsible for oversight of M&E development and implementation and compliance with safeguards requirements.

70. Policy, planning and finance are at the core of the work undertaken by the PMO, with GESI and environmental and social safeguards central to all work streams. The senior PMO staff will be responsible for work streams at national level (Managing Director), sector level (Director of Policy and Planning) and project level (Director of Projects).

Implementation plan

71. The Program is planned for a four year period, plus a four year extension if warranted, based on quality and performance reporting. An inception phase will be conducted to establish the Program, key milestones will be set in the contract but the duration of the phase will be flexible and iterative with some components

coming online faster than others. Program planning will be organised against the three core work streams at project, sector and national levels. There will also be generic Program management functions and specific DFAT responsibilities. The adaptive design approach will be implemented through whole of Program Annual Plans, sector work plans for ESIP engagement (updated six-monthly) and project plans for each project. The Monitoring and Evaluation Framework and Manual will also be updated each year to reflect the investment decisions made and respond to changes in the operating environment.

72. The following are the anticipated main tasks of the Managing Contractor and DFAT under the Program.

Contractor

Management tasks

- Establish location and functions of the PMO in a counterpart agency (as determined by DFAT).
- Prepare an operations manual (finance, personnel, security, detailed risk management plan, administration, communications protocol, roles and responsibilities with DFAT) and implement.
- Prepare and implement a GESI toolkit and strategy for sector and project engagement.
- Prepare and implement an M&E Manual.
- Recruit and manage staff including the core team for the PMO, sector lead advisors and a TA pool and identify placements in the relevant agencies.
- Develop a capacity development strategy addressing individual, agency, sector and enabling environment.
- Establish guidelines for environmental and social safeguards, and climate smart policy and planning and implement.
- Establish clear roles and relationships and communications protocol between PMO team and DFAT.
- Develop, manage, monitor and report on Annual Plans for the whole of ESIP which draw on the sector and project plans.
- Support governance arrangements including the ESIP Steering Committee.

Implementation tasks

Project management

- Independently or in partnership with GoPNG and/or other development partners, manage projects as issued in tasking notes.
- Provide advisory support in financing options, and on negotiation and contracting with private sector, development partners as appropriate.
- Provide advisory support in infrastructure project design and planning, procurement and contracting
- Provide project management as directed for procurement, design management, contracting, supervision, quality assurance, and construction management.
- Establish Project Management Units for individual projects, with agreed TOR approved by DFAT, and Australia's role and level of support clearly specified.
- Ensure effective monitoring of implementation against the work plan.
- Ensure projects meet the quality criteria and effectively integrate environmental and social safeguards, address relevant gender, social inclusion, accessibility and sustainability issues in their design and implementation.
- Prepare Exit and Sustainability plans.
- Develop, manage and supervise project work plans.
- Develop and manage project level risk management plans and provide a monthly update to DFAT on how risk is being managed.

Sector engagement

- Undertake research and consultations and prepare analysis reports for sectors as directed by DFAT.
- Undertake detailed stakeholder analysis of each focus sector with direction and input from DFAT.
- Establish relationships with prospective counterpart agencies.

- Negotiate and establish suitable sector coordination functions and arrangements for each focus sector and provide secretariat support as agreed with DFAT and the GoPNG lead agency.
- Develop mechanisms for stakeholder participation and engagement in sector policy development and planning (with GoPNG).
- Provide advisory support to consider financing options, and in negotiations and contracting with private sector and development partners.
- Support the development of prioritised infrastructure plans or pipelines for each sector (to be agreed across sector with central agencies), with range of delivery and financing modalities, and support agencies with annual budget bid for infrastructure pipelines which include maintenance costs.
- Ensure the integration of environmental and social safeguards and gender, social inclusion, accessibility and sustainability issues into sectoral policy and practice.
- Manage research and analysis activities.
- Develop and deliver a work plan (updated six monthly) for ESIP engagement in the sectors of focus.

Central agencies engagement

- Undertake an assessment of advisory and technical assistance priorities of the GoPNG and its central agencies in infrastructure policy, budgeting, planning and financing.
- Support liaison between line agencies and central agencies on affordable annual budget bids for key infrastructure, including ensuring adequate provision for maintenance.
- Ensure integration of environmental and social safeguards and gender and social inclusion and accessibility guidelines into GoPNG policy and practice (in sector and whole-of government work streams).
- Identify opportunities to develop policies and regulations to address barriers to infrastructure planning and manage the development of those policies and regulations.
- Prepare policy advocacy plan to inform both sector and central agency engagement.
- Manage research and analysis activities.
- Develop and implement work plans (updated six-monthly) for institutional support to be provided to central agencies including through the TA pool.

DFAT role

DFAT will take a prominent role in leading policy dialogue with key counterparts. DFAT responsibilities include:

- Participate in mobilisation briefings and establish working relationships with Contractor PMO team (based on a 'one team' model or partnership approach).
- Agree the counterpart agency for the Program Management Office and maintain engagement with Central Agencies on program strategy and direction.
- Participate in and support GoPNG to lead sector coordination mechanisms.
- Make strategic and policy decisions (on project selection, sector priorities).
- Monitor the enabling environment to ensure sufficient political and institutional will to support program implementation.
- Promote and advocate for gender equality and social inclusion and other Australian Government policy priorities.
- Conduct internal reviews of context, policy engagement, and implementation progress of the Program.
- Prepare annual Aid Quality Check (AQC) and contribute to the overall Australian High Commission Annual Program Performance Report.
- Coordinate participation in selected sectors with development partners.
- Work with Managing Contractor on a policy advocacy plan to drive key policy and budget reforms across line agencies and central agencies, including coalitions of like-minded donors and financiers.
- Ensure GoPNG ownership and participation in key decision making, ensuring evidence based decision making and the greater use of data, economic analysis, poverty analysis to inform policy and investment choices.

- Identify projects and activities as entry points for Program engagement, and negotiate participation and GoA financing and support with GoPNG.
- Coordinate collaboration across the GoA development program at Post (governance, health, education and others as appropriate).
- Separately contract and manage an ESIP Independent Reference Group.

Monitoring, evaluation and learning

73. Effective monitoring and evaluation (M&E) of ESIP is essential to ensure that it achieves what is expected, is able to improve over time and can demonstrate what has been achieved. Central to all M&E is learning and use of findings, including to improve ESIP implementation and implementation of other partner and donor activities, and to support sector and DFAT decision making.

74. The Managing Contractor will develop an ESIP M&E Manual as a key milestone in the first six months of the Program. The Manual will contain the whole-of-program level monitoring plan with indicators and performance questions, evaluation questions for the program and sector levels and quality standards and monitoring questions for projects. It will include requirements and templates for preparing specific sector and project level plans and a detailed description on how M&E activities are to be carried out and how data is to be collected, analysed and used for learning and reporting. The Manual will be updated at least annually.

75. Both qualitative and quantitative data will be used and the M&E methods selected will reflect the best approaches for addressing the information needs at the different levels and for different types of activity. In addition to ensuring all data collected is disaggregated by sex and disability, the M&E framework will include gender sensitive indicators. It will also include several indicators that can be used for aggregate reporting against the Performance Assessment Framework (PAF) for Australia's aid program in PNG.

Responsibility for M&E

76. Monitoring will be implemented internally by the management team, led by the M&E Advisor. Monitoring at a project level will be implemented by the PMU, at the sector level by the lead sector specialist and at the national level by the M&E Advisor. Monitoring activities will take place regularly and relatively frequently as part of ongoing management and implementation.

77. At the project level, all investments in infrastructure will be reviewed by the Managing Contractor following their completion. At a sectoral and national level, the evaluation questions will be investigated by the Managing Contractor annually and reported in the Annual Report. In addition, it is expected that DFAT will conduct an independent mid-term evaluation. The evaluation will be used to improve the Program and inform potential subsequent phases.

Reporting

78. A detailed progress and performance monitoring reporting schedule will be set out in the contract between DFAT and the Managing Contractor and articulated in the M&E Manual. This will include monthly project level progress reports and quarterly reports on progress against sector work plans using the sector monitoring and evaluation plans. Sector quarterly reports will be endorsed by the sector coordination group.

79. A whole of program level quarterly report - which will have a focus on the work of the PMO and progress of activities and outcomes at the national level - will be provided to DFAT. Institutional support work plans will be a key source of information for analysis, complementing an analysis of GoPNG documentation and feedback from stakeholders against the key indicators. Whole of program reports will also incorporate risk reporting.

80. Whole of program reports will be prepared annually and draw on national level, sector and project reporting to provide case studies and consolidated information drawn from monitoring and evaluation sources. The report will update on progress against the program indicators, as well as reflect on the evaluation questions. The report will be shared with GoPNG, development partners and other relevant partners, and made public.

ESIP Independent Reference Group

81. To ensure the Program has adequate independent oversight and strategic guidance, DFAT will contract an ESIP Independent Reference Group that will inform program strategy and provide reports. The reports will be based on reviews of the program that draw on existing M&E material and discussions with program partners as required. The reports will also be used to inform program quality assurance and assessment, including the annual Aid Quality Checks.

Risk management

82. The ongoing management of all risks are the responsibility of the Contractor and DFAT (clarified in the contractual and management arrangements). The Contractor will develop a detailed risk management plan in the inception phase with input from key stakeholders. Risk will be discussed at least monthly at management meetings with DFAT and raised through exception reporting as needed. An updated risk register will be provided to DFAT, by the Contractor, quarterly. Each individual project will have its own risk profile that will need to be identified, assessed and managed. Project level designs and plans will include risk analysis and risk management planning.

Sustainability

83. Sustainability is the fundamental driver for the approach taken to this design. The problem analysis highlights the 'build, neglect, rebuild' cycle as the critical challenge across infrastructure subsectors - the benefits of any infrastructure investment must be sustained. Rather than focus on individual infrastructure investments and the immediate benefits of that investment, the design adopts a long-term view and seeks to address the underlying financial, technical, human resource capacity, institutional (political and management), policy and regulatory, social and cultural, and environmental constraints to sustainability. Strategies, and actions, for each of these constraints is addressed in the design in the following ways.

84. For individual assets, financial sustainability will be addressed through encouraging the adoption of whole of asset life financial analysis and budgeting processes at project planning stages, so that the ongoing maintenance costs are factored into the capital investment costs based on maintenance plans. An enhanced focus on maintenance costing and planning will be built into a) Australia's own pipeline of funded projects b) GoPNG's own infrastructure strategic plans and pipelines of infrastructure that ESIP assists with c) policy reform and systems. Adoption of socio-economic analysis that factors in the recurrent costs is critical to ensuring that ongoing services can be provided from capital investments. Financial sustainability will also be addressed through consideration of alternative and innovative financing mechanisms for investment, including user-pays approaches (in particular in utilities such as water and electricity) and private sector involvement. Sustainability and Exit Plans will be prepared at the outset for each individual project to ensure that the benefits and management of the asset can be maintained once donor support is completed. Technical sustainability will be assured for individual projects through the provision of technical assistance and specialist inputs related to design, supervision, and procurement and contracting through the life cycle for those projects directly supported by Australian aid.

85. The focus on institutional arrangements for infrastructure investment, including the policy and regulatory environment, the management practices between Agencies, and consultation with external parties, is a key sustainability strategy to address the fragmentation of responsibilities, and lack of coherence and

overall prioritisation in planning, budgeting and management of assets. The approach of the Program to work within GoPNG systems, rather than managing stand-alone activities or investments, is also aimed at supporting sustainable benefits for broader prioritisation and investment that reach beyond the immediate scope and scale of Australian aid funding. Sustainability of improved knowledge and skills through training and technical support to individual GoPNG officers will be supplemented by the efforts to engage a broad range of stakeholders, including political leaders, private sector and non-government organisations, in coordination mechanisms that promote the social and cultural change in changed business practices and expectations that is needed to support individuals' efforts.

86. Environmental sustainability will be addressed as an integrated part of the planning cycle for new assets and ongoing asset maintenance. Environmental considerations, including those related to climate change and disaster risk reduction, will feature in policy considerations and in planning, design, construction and management of assets. This includes the allocation of resources and prioritisation of capital investment towards those sectors and projects which may be impacted by climate change so that mitigation and adaptation efforts have the most economic and social benefit. Future climatic conditions will need to be considered for planning and managing most aspects of infrastructure activities. Climate change considerations will influence the level of service, location, design, operation, maintenance, renewal or retrofitting, as well as eventual disposal of assets. Climate change and extreme weather are exacerbating many of the disaster risks that PNG faces today. Floods, droughts, storms, storm surge, tidal intrusion and landslides pose significant threats to livelihoods, economic growth, and environmental sustainability across PNG. Broader environmental sustainability will be addressed through compliance with PNG's national environmental law, DFAT's Environment Protection Policy (2014) and the Australian Environment Protection and Biodiversity Conservation Act (EPBC 1999) as it applies to the Australian aid program. As necessary, ESIP will work with partners to review PNG's regulations and environment frameworks as they relate to infrastructure to ensure adequate standards are in place and followed.

Gender Equality and Social Inclusion

87. The objective of GESI in ESIP is not just to enable the full participation of women and other marginalised groups in the construction, implementation and operational phases of infrastructure projects, but also to influence change that is inclusive and equitable in the political economy through activities and engagement at national, sectoral and project levels. ESIP will take a two pillar approach in its GESI strategy. The first pillar sees GESI integrated in all activities of policy engagement, technical assistance and capacity development and project management at all levels of the Program. The second pillar includes targeted activities that are needed to address the disparities and vulnerabilities faced by women and marginalised groups. The two pillars are underpinned by evidence and learning: there will be a focus on collecting high quality data to data and building a robust evidence base to influence advocacy and project management. To this end GESI considerations are also fully incorporated into the M&E framework.

88. At the project level, under pillar one, gender equality and disability inclusion considerations will be mainstreamed throughout implementation of identified infrastructure projects, as agreed with GoPNG. The entry point for this will be a detailed GESI analysis aimed at understanding how gender and other social differences, such as age, disability, ethnicity, affect norms, roles, and responsibilities, and may shape project implementation and benefits. The different implications and likely outcomes for marginalised groups and the reasons for those differences will also be part of the analysis. The analysis will help to ensure that the project's objectives explicitly identify how it will improve the lives of women and girls and people with disabilities. Using GESI analysis and sex and disability disaggregated data to develop strategies throughout the project cycle will be a key aspect of ESIP's GESI approach. Under pillar two, targeted activities will be identified which align to the Program's goals and which to help overcome specific barriers to engagement for women and marginalised groups.

89. At the sector level, the integrated approach of pillar one will see gender analyses developed for each of the priority sectors for ESIP, and used to inform the work of the sector coordination mechanisms that bring together GoPNG line and central agencies. Under pillar two, the agreed work plans will include activities that will address the specific gender based barriers within the sector. Where necessary, specialists will be contracted through the TA pool to meet specific needs including for GESI analysis or to deliver training to meet capacity development needs. Advisors will also seek opportunities to link up with women's groups, disabled peoples organisations and NGOs working in community development to benefit from their expertise and insights where possible.

90. At the national level, there will engagement with central agencies, development partners and external stakeholders to advocate for and support legislative, policy, regulatory and administrative reforms that support gender equality and social inclusion in infrastructure investments. The project level GESI analysis in particular, and a political economy analysis in general, will inform the advocacy work at the national level. The Program Management Office (PMO) will have the requisite personnel with knowledge of GESI to strengthen whole of Government coordination and capacity building opportunities on GESI. The PMO will also work closely with DFAT by providing GESI disaggregated data and evidence for their political and policy engagement with GoPNG and other stakeholders.

Private sector and innovation

91. The private sector has an important role to play in PNG's infrastructure development, and the Program. While private infrastructure for commercial purposes should be the responsibility of individual companies, public infrastructure is critical to the business environment and so private sector stakeholders should be engaged in the prioritisation and policy making processes of government planning; and the private sector can bring skills, expertise and financing to public sector programs if the right institutional and policy settings create incentives and good governance. The Program will promote private sector engagement through:

- seeking participation from the private sector in sector coordination mechanisms, to ensure their experience, interests and capacity is taken into account in planning and prioritisation by GoPNG;
- drawing on local private sector technical and managerial capacity for the design and delivery of infrastructure projects, when within-agency expertise is not available;
- seeking capital funding for infrastructure projects on a commercial basis when government budget funding and donor funding is not immediately available and appropriate commercial settings are in place; and,
- supporting the formation of public private partnerships (PPP) where there is appropriate transfer of risk for reward - increasing the economic benefits to PNG and its citizens from infrastructure investment.

92. One of the benefits of development partners (Australia and others) being involved in a major infrastructure project, is that this brings confidence to the private sector to engage on a PPP or commercial basis, where the risk can be shared. However, PPPs need special management to ensure they deliver on an equitable basis. Through its specialist TA panel, ESIP will access the skills required to structure PPPs in order to maximise social benefits. In identifying and developing individual infrastructure investments, the Program will take opportunities to explore innovative financing and management solutions based on lessons from other countries. Subject to the Commonwealth's financial management framework, this may include the use of alternative financial instruments (e.g. debt and/or equity) to facilitate project structuring in instances where this is determined to be more efficient and effective than grant financing. Such an approach would also facilitate more efficient use of the Program's limited resources and allow them to be recycled back into new investments as the project portfolio matures.

Climate Change and Disaster Risk Reduction

93. It is vital that climate change impacts to projects are actively considered given the current trends and projections which are likely to affect the operational profiles of existing infrastructure and bring additional challenges to the planning, design and construction of new infrastructure.

94. Meeting PNG's infrastructure needs for delivering climate resilient low carbon growth, and achieving its international climate change commitments, will require targeted investment in infrastructure across key sectors including energy and water and sanitation, as well as mainstreaming of climate risk and resilience analysis across all development sectors. ESIP will consider targeted energy and water infrastructure as part of the portfolio of projects and build institutional capability to prioritise, plan and implement infrastructure for climate resilience and low carbon growth as part of mainstream infrastructure planning in the key investment sectors.

95. As climate change and disasters impact across all development sectors, climate change and disaster risk management needs to be integrated systematically across all project activities. For this reason, the risk analysis and risk management planning undertaken for project level designs and plans will include specific attention to the potential risks posed by climate change and disasters. Specifically, the risk analysis will cover potential climate and disaster related consequences relating to:

- Infrastructure impacts and implications for levels of service.
- Financial loss as a result of potential impacts and associated replacement, or rehabilitation and additional maintenance costs.
- Reputational impacts to key project stakeholders, including DFAT or the PNG Government.
- Livelihoods impacts to local communities that depend on the infrastructure.
- Health/safety impacts to local communities and workers.
- Industry impacts as a result of disruption to critical infrastructure.

96. With support from safeguards specialists in both understanding the local natural environment, and also understanding the experiences of local communities, the straightforward risk assessment process can be integrated across all project activities. Once key climate and disaster related risks are identified, then effective risk treatment options can be designed into the projects to ensure that disaster risks are planned for, and win-win or no-regret adaptation solutions are implemented. These solutions typically are cost-effective now and under a range of future climate scenarios and do not involve hard trade-offs with other policy objectives. Ideally they will contribute to adaptation whilst also having other social, economic and environmental policy benefits, including in relation to mitigation.

Safeguards

97. Environment, resettlement and child protection safeguards will be addressed through implementation at the overall program level, and at the individual project level. These safeguards will be addressed through compliance with national, DFAT and Australian government policy and law as it applies to the Australian aid program.

98. At the whole-of-program level, ESIP will work with the GoPNG to analyse the policy and regulatory environment in PNG to identify gaps and constraints in the safeguards environment that pose constraint to investment or a risk in implementation. Technical assistance will be provided to central and sector agencies to recommend reforms to legislation, policy and procedure to address identified needs. International good practice from the World Bank, Asian Development Bank and other developing countries will be referred to in order to develop appropriate and sensible approaches in the PNG context. Land acquisition is a major challenge for public infrastructure, and land ownership is a major constraint to private investment in PNG. Associated resettlement and compensation issues can be significant barriers to implementation and create

additional cost and time for investors. Child protection policies will be adopted across the Program, with all international advisers requiring a Working with Children clearance. Child protection safeguards will be included in the policy analysis to determine priorities and approaches for reforms to legislation and regulation.

99. At the individual project level, procedures for risk analysis and screening on safeguards issues will be introduced directly where Australian aid is contributing to the investment, and will be promoted for adoption by GoPNG agencies for broader utilisation. Where safeguards issues are identified, ESIP will provide technical assistance in the planning, design, procurement, construction and implementation to ensure these issues are addressed. This technical assistance will also be available for infrastructure projects where ESIP is not providing capital funding. Child protection safeguards requirements will be passed on to contractors and sub-contractors for individual capital projects where funding is provided by Australia.

100. A safeguards analysis will be included in the risk analysis undertaken for individual projects and included in the Program's risk management plan.