



CAPACITY DEVELOPMENT PLAN FOR THE NAP PROCESS

TABLE OF CONTENTS

ABBREVIATIONS	3
INTRODUCTION	4
I. CAPACITY NEEDS IDENTIFIED IN PREVIOUS ASSESSMENTS	8
II. SYSTEMIC, INSTITUTIONAL AND INDIVIDUAL CAPACITY DEVELOPMENT NEEDS	11
2.1 Systemic capacities: governance framework for adaptation.....	11
2.2 Institutional and individual technical capacities	15
2.3 Capacity building/training priorities	22
III. CAPACITY DEVELOPMENT APPROACH	25
3.1 Scope and objectives	25
3.2 Target audience	25
3.3 Principles	26
3.4 Capacity building themes.....	26
3.5 Tracking and assessing capacity building efforts	32
IV. WORKPLAN	33
REFERENCES	34
ANNEX	35

ABBREVIATIONS

ACIAR	Australian Centre for International Agricultural Research
ATWG	Adaptation Technical Working Group
CCDA	Climate Change Development Authority
CCMA	Climate Change Management Act
CSAP	Climate Smart Agriculture Policy
DAL	Department of Agriculture and Livestock
DDAs	District Development Authorities
DoF	Department of Finance
DoT	Department of Transport
DoW	Department of Works
DNPM	Department of National Planning and Monitoring
FPDA	Fresh Produce Development Agency
GCF	Green Climate Fund
JOA	Joint Organizational Assessment
NAP	National Adaptation Plan
NCCB	National Climate Change Board
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NAQIA	National Agricultural Quarantine and Inspection Authority
NARI	National Agriculture Research Institute
NDoH	National Department of Health
NHSS	National Health Service Standards
NPC	National Procurement Commission
NTS	National Transport Strategy
NWS	National Weather Service
PHAs	Provincial Health Authorities
PIF	Pacific Islands Forum
TSCMIC	Transport Sector Coordination Monitoring and Implementation Committee
TSSP	Transport Sector Support Programme
UNDP	United Nations Development Programme

INTRODUCTION

Building capacities on climate change adaptation is of paramount importance to enable developing countries to address the adverse effects of climate change. As part of the response to the challenges posed by climate change, governments will require among other actions to coordinate the adaptation work at the national level, assess the impacts of climate risks, design and implement adaptation measures, set up credible measures to monitor climate-related parameters and the impact of adaptation actions, adopt new technologies and methods, and raise awareness on climate change (ECBI 2020; LEG 2012). However, developing countries often lack the necessary human, technical, institutional and financial capacities to undertake these actions in a effective, efficient or sustainable manner, underscoring the need to strengthen institutional capacities at different levels of policy implementation and across sectors.

While capacity resides in humans and organisations, the overall framework within which the institutions and individuals operate—including regulation and policies, also play an important role, reflecting three levels at which capacity building efforts for climate change adaptation are needed: individual, institutional, and systemic (Figure 1). Therefore, capacity building to address climate change should be a progressive and cumulative effort involving all three categories, as well as reflect evolving capacity needs (ECBI 2020).

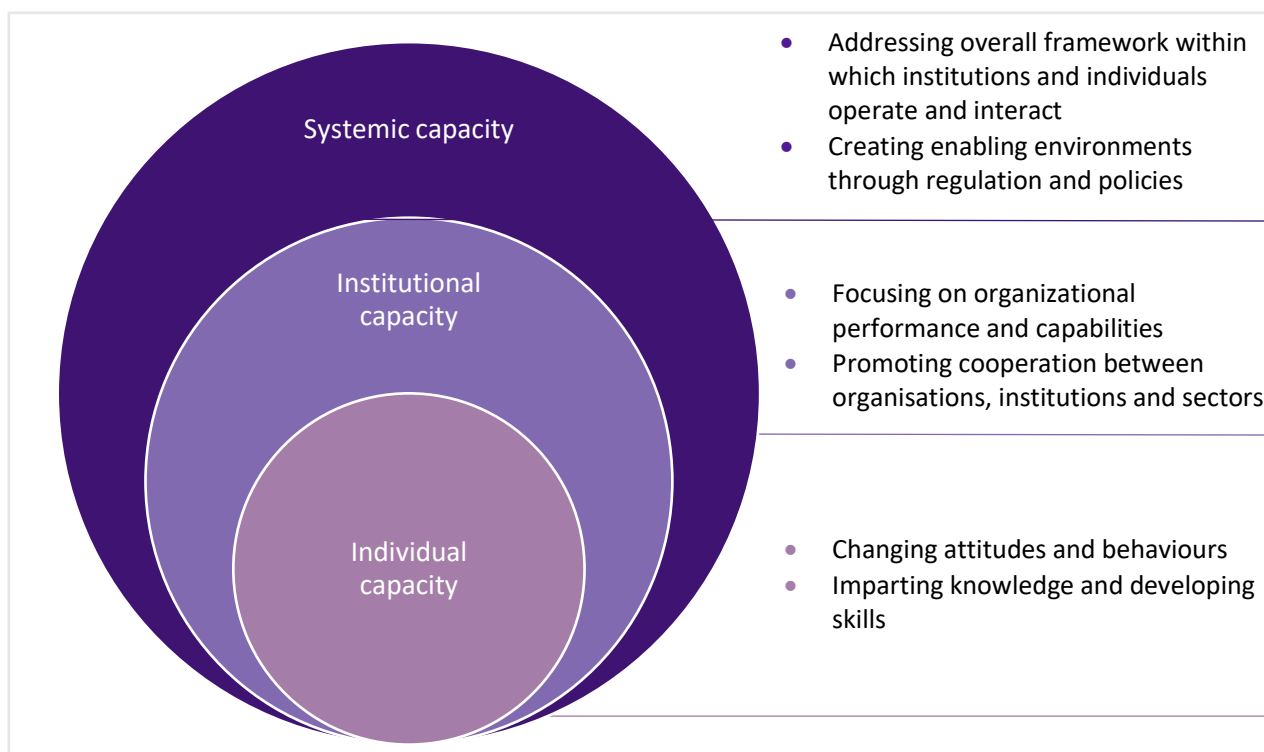


Figure 1. Levels of capacity building. Source: adapted from ECBI (2020).

National Adaptation Plans (NAPs) are part of the efforts promoted at the international level to help developing countries to better design, coordinate, implement and monitor their efforts in addressing climate risks. Importantly, the NAP process aims to put in place the systems and capacities needed to facilitate the integration of climate change adaptation into development planning, decision making and

budgeting (NAP Global Network 2020). In PNG the NAP will constitute a national adaptation operational and governance framework that sets out the national strategy to reduce the vulnerability of the country to address the anticipated impacts of climate change, a structured programme of action on adaptation across different sectors and levels of government, and the policy, institutional and coordination framework to enable adaptation actions in achievement of PNG's climate change adaptation priorities. PNG's NAP process also aims to strengthen capacities, as well as support a country-driven, gender-responsive, and participatory approach.

An important step in the NAP process is to conduct a systematic capacity gap analysis of the policy, legal and institutional frameworks and capacities in place and relevant to the NAP's priority sectors and cross-cutting policy areas, which can in turn inform a strategy to address shortcomings, including through the identification of options for strengthening and/or establishing various institutions, bodies, policies and legislative frameworks. In addition to the systematic identification of such a policy and institutional anchor, the NAP process in PNG will require robust management, operational and coordination capacities and skills in place to enable cross-sectoral policy integration and allocation of sectoral and subnational responsibilities towards implementation.

It is with a view to support the operation of the policy, institutional and coordination frameworks to support the formulation of the NAP and the implementation of climate adaptation actions, that a gap assessment of national adaptation structures and systems was undertaken as part of PNG's NAP process. The findings from the legal, policy and institutional capacity assessment are presented in a complementary and stand-alone report, and provides an overview of the relevant governance framework for all priority sectors and policy areas in accordance with the Climate Change Management Act (CCMA) and PNG's adaptation priorities. The assessment aimed to identify opportunities or 'entry points'¹ for integrating climate change adaptation into different policy levels, as well as for strengthening coordination arrangements at both decision-making and operational levels. The entry points identified in this assessment included: policy review and development; implementation (including the development of guidelines and tools); and institutional arrangements (including assessing institutional capacity and needs).

Addressing capacity gaps would also involve efforts to equip teams and institutions involved in adaptation with the necessary skills as part of strengthening the enabling environment (LEG 2012). Therefore, to complement the legal, policy and institutional capacity assessment, particular institutional capacities and skills at multiple levels of implementation within and across institutions was further undertaken. The latter has informed the formulation of a Capacity Development Plan to support capacity development efforts towards the design, implementation, monitoring and reporting of PNG's sectoral adaptation actions, and particularly in the infrastructure, transport, agriculture and health sectors. These sectors have been highlighted as priority sectors in which to enhance adaptation action as part of the NAP phased approach.²

Objectives and how to navigate this document

¹ An entry point is defined as 'one or more opportunities for incorporating specific climate change adaptation considerations into a given plan, programme, or project' (UNDP, 2010).

² PNG has expressed its commitment to adaptation in its enhanced Nationally Determined Contribution, highlighting key actions to be developed between 2020-2030 with a strategic focus on four priority development sectors: agriculture, health, transport, and infrastructure.

The United Nations Development Programme (UNDP) in close collaboration with PNG's Climate Change Development Authority (CCDA) is implementing the PNG's National Adaptation Plan project with support from the GCF Readiness Programme. Stocktaking activities conducted for the development of the project identified as priorities: a) strengthening institutional capacity to effectively coordinate the NAP process with focus on four priority sectors: agriculture, health, transport and infrastructure; and b) facilitate integration of climate change adaptation priorities in existing national and sectoral policies. As part of the first outcome "strengthened coordination mechanism for multi-sectoral adaptation planning and implementation at different levels", the project aims to implement a capacity development plan stemming from gap assessments in collaboration with national institutions through trainings in the identified areas. This report constitutes the capacity development plan for NAP priority sectors: **agriculture, transport, health and infrastructure.**

The capacity development plan is structured as follows:

Section I provides background information on previous capacity assessments and related recommendations that could be relevant in the context of adaptation.

Section II describes adaptation capacity needs in PNG, providing an overview of key findings of the legal, policy and institutional capacity assessment conducted by this consultancy team in the context of the NAP process. This section also delves into existing and necessary technical capacities and adaptation skill sets in the agriculture, transport, infrastructure and health priority sectors to better understand the training needs of personnel at key institutions involved in adaptation planning and implementation in these NAP priority sectors.

Section III defines the approach for developing capacities in the four priority sectors for the NAP, including the scope, target audience, and key themes.

Section IV presents a timetable for implementing the capacity building plan, including targets and indicators to measure progress during implementation.

The Annex includes the questionnaire used to assess individual capacities.

This document was prepared through mix methods alongside the legal, policy and institutional assessment, which comprises in depth analyses and consultations with stakeholders. Analytical work included an extensive review of the literature and an analysis of the legal and institutional framework. Consultations were carried out with CCDA and representatives of regulated sectors.³

³ Findings further elaborated in Output 2.a, Analysis of Laws, Institutional, Policies and Plans, and Institutional Capacity Assessment.

I. CAPACITY NEEDS IDENTIFIED IN PREVIOUS ASSESSMENTS

The Government of PNG has undertaken important efforts to assess capacity, identify gaps and options to address said gaps as part of its efforts to enhance climate action. As part of these efforts, the Government of PNG, supported by development partners, has undertaken a series of climate change capacity gap assessments including in relation to the institutions, policy frameworks, coordination arrangements and human capacities for overall climate change action in the country.

Three capacity gap assessments were conducted in PNG between 2018 and 2019: i) a Joint Organizational Assessment; ii) an assessment to identify options for strengthening climate finance coordination and accessibility; and iii) a capacity gap assessment towards requirements from the Green Climate Fund (GCF). This section provides background information on the gaps and recommendations from these previous assessments that are relevant to strengthen capacity for adaptation action in PNG.

a) Joint Organizational Assessment

In 2018 USAID Climate Ready conducted a Joint Organizational Assessment (JOA) to identify the existing strengths and weaknesses at CCDA with respect to its functioning as the National Designated Authority (NDA) to GCF (USAID Climate Ready and CCDA 2018). The JOA provided recommendations grouped into two broad categories: 1) supporting the establishment of enabling conditions for effective functioning of the NDA-stemming from a review of the legal, institutional and governance framework for climate action; and 2) support for primary NDA functions. While the JOA sought to provide recommendations focused on strengthening capacities in CCDA to perform its function as NDA, several recommendations for strengthening the institutional and human resource capacity of the CCDA can also support the institution's function to lead and coordinate climate change adaptation efforts:

- The JOA found that while there is understanding of national priorities, strategies, and plans, CCDA's staff is overburdened to keep track of revisions and new versions of national development plans, sector plans, and subnational plans. This challenge is compounded by the lack of a database or system to track development plans.
- The institution does not have a formal mechanism of coordination or procedure for regularly consulting with counterparts at the line and coordinating agencies. In addition, the ability of CCDA to contribute to development national policies, plans and strategies is unclear. Therefore, the JOA highlighted the need to formalize and institutionalize horizontal and vertical coordination.
- CCDA needs support for the development of implementing regulations for the CCMA and needs to identify a sustainable source of financing.
- The JOA recommended developing tools and knowledge products and conducting training focused on supporting the development of bankable climate change projects, as well as developing social and environmental impact assessment guidelines, tools, and capacity development knowledge products.
- To increase capacity, the CCDA could establish a capacity building partnership mainly with national universities.

b) Options for Strengthening Climate Finance Coordination and Accessibility

In 2019 the Pacific Islands Forum (PIF) Secretariat developed a report discussing options specific to climate finance at the national level. The options report aimed to "provide a snapshot review and rapid assessment of the national institutional arrangements and policy framework of PNG regarding climate

change and climate finance”, as well as identify options to enhance PNG’s accessibility to sustainable funding modalities for climate change initiatives (PIF Secretariat 2019). This options study covered the CCDA as well as other relevant institutions and organisations in the national climate finance landscape.

While the recommendations are focused on climate finance, the report developed an institutional, policy and capacities analysis to identify gaps and provide recommendations on national coordination, policy and planning, and for developing and managing human capacity relevant to the NAP process. Key gaps and recommendations include:

- Lack of a national coordination mechanism on climate change. The CCMA provides for a National Climate Change Board (NCCB). However, the Board has never met, and the roles of the NCCB do not include coordination. CCDA-managed technical working groups are open but mostly attended by representatives of technical sectors and research institutes and serve as a platform for information sharing instead of a coordinated approach that links to the broader national development agenda.
- In alignment with the Government’s position to utilise local expertise and reduce reliance on external consultants, the report recommends the Department of National Planning & Monitoring (DNPM) to coordinate and maintain a roster of experts drawn from local technical agencies and academic institutions in PNG that possess technical expertise to develop climate change proposals, monitor and evaluate projects, and provide capacity training to other government officials.
- Reviewing the CCMA to streamline the governance arrangements and clarify roles and responsibilities of key government central agencies and line agencies (in addition to CCDA) regarding climate change engagement in PNG. CCDA was recommended to ensure that the review also streamlines the governance and reporting arrangements set out in the legislation and includes a coordination mechanism on climate finance.
- CCDA is adequately resourced in terms of the number of personnel to support the broader national climate change program but lacks the appropriate technical skills to effectively access international climate finance compared to other smaller Pacific Island countries. In addition, there is limited ability to build and sustain capacity in a manner that consistently builds corporate knowledge. Boosting the staff capacity within CCDA or reviewing the job descriptions of existing staff can improve national coordination with other departments, provincial administrations and partners, as well as develop the necessary technical skills to build the capacity of other agencies, communities, NGOs and private sector to formulate feasible project proposals.
- Capacity building and training on understanding climate finance opportunities and proposal writing is a priority that CCDA with the support of other departments and donors should consider undertaking. Capacity building should be targeted to technical line departments/authorities at the national level, provincial governments, NGOs and community-based organisations, and the private sector.

c) CCDA Capacity Needs Assessment Towards GCF Requirements

In 2019 the Global Green Growth Institute (GGGI) developed a capacity needs assessment focused on the NDA (CCDA) in the context of strengthening capacity to facilitate project development and implementation. The assessment covered the following topics relevant to climate change adaptation efforts in the country: a) effective governance—how to make policies, laws and regulations work; b) Inter-agency coordination and national ownership; c) supporting climate change adaptation planning; and d) facilitating and coordinating project identification and development (GGGI 2019). Capacity gaps and recommendations relevant for climate change adaptation include:

- The assessment underscored the need to review the CCMA and develop the 'implementing regulations', as well as to build legal capacity in the CCDA to provide legal advice to all its operations.
- PNG has a well-established institutional set-up with inter-agency bodies and organizations well suited for the effective implementation of the sustainable development goals. However, there is limited coordination and cooperation through formally instituted bodies or through a cross-sectoral coordination mechanism for climate change or climate finance.
- The assessment emphasized the need to improve overall staff capacity in the CCDA, and especially at middle level management. Top management at CCDA is comprised of experienced and qualified staff, while young and energetic officers are at the operational level. However, the middle management has very few or almost no experienced and qualified people, nor a system in place to provide mentoring and enhance knowledge and skills of the officers at the operational level.
- CCDA staff have acquired a diverse set of knowledge and skills through workshops and short-term training. However, this knowledge has not been widely shared within the institution. To address this issue, CCDA could create a system for sharing ideas, knowledge, and skills within CCDA and partner agencies such as 'lunch and learn' sessions or promote that staff returning from training present a seminar targeted to other staff members at CCDA.
- Capacity support is needed on project identification and development.
- The assessment recommends the CCDA to implement the Corporate Plan together with the recommendations provided through the assessments and those by PIF Options and JOA reports.

II. SYSTEMIC, INSTITUTIONAL AND INDIVIDUAL CAPACITY DEVELOPMENT NEEDS

This section provides a comprehensive overview of the systemic, institutional and individual capacity assessment conducted in the context of the formulation of the NAP. This assessment looked at all regulated sectors⁴ as well as four cross-sectoral policy areas (Disaster Risk Reduction, Health, Water and Sanitation, and Climate Induced Migration). This assessment aims to identify entry points for the integration of climate change adaptation into development planning, as well as for the formulation, implementation and monitoring of the NAP; and covered the following elements:

- Existing policies and how they address and enable climate change adaptation, with a view to providing recommendations for integrating climate change adaptation into different policy levels to facilitate successful adaptation;
- Information management, communications and awareness raising;
- Monitoring and evaluation systems, including for overall coordination of work at the national and sectoral levels;
- Coordination arrangements.
- Existing technical capacities at the national level to address climate change adaptation

This section summarizes key findings and recommendations for the **NAP priority sectors** (Agriculture, Transport, Infrastructure and Health), including information on the technical capacities and adaptation skill sets needed in key institutions from these sectors. A deeper skills assessment was further conducted to better understand the training needs of personnel in key institutions involved in adaptation planning in the NAP priority sectors, presented in section 2.1. below. Both the capacity needs identified in previous assessments as well as key findings from the aforementioned legal, policy and institutional capacity assessment have further informed the capacity building themes included in this plan (see section III).

2.1 Systemic capacities: governance framework for adaptation

This section provides an overview of key opportunities and recommendations to strengthen the national governance framework for adaptation (structures, policy formulation processes, systems and procedures) for the NAP priority sectors. Opportunities and recommendations are summarized below.

⁴ Agriculture and livestock; Energy, Transport, Works & Infrastructure, Forestry and Land use sector (LULUCF), Mining, Fisheries and Maritime resources, and Waste management.

Table 1. Key opportunities and recommendations to strengthen the national governance framework for adaptation, focused on the NAP priority sectors.

NAP priority sector	Key gaps and recommendations to strengthen the governance framework for adaptation
Agriculture	• The agriculture sector is divided into several entities and commodity bodies with autonomous administrative arrangement and no overriding legislative or policy framework allowing a central coordinating agency. This poses significant challenges for communication, cooperation and coordination including monitoring and evaluation of agriculture activities, and creates a gap in the coordination and monitoring performance of the overall agriculture sector. For example, the Department of Agriculture and Livestock (DAL) is the lead agency in the agriculture sector, responsible for the management of the agriculture sector with the mandate to provide policy advice, technical and administrative support for the optimal performance of the sector including strategic leadership and coordination; agricultural research is under the National Agricultural Research Institute (NARI) while Quarantine is under the National Agricultural Quarantine and Inspection Authority (NAQIA) and Fresh Produce is under the Fresh Produce Development Agency (FPDA). These institutions operate independently from DAL. Apart from these institutions, the agricultural commodity bodies operate independently as a 'corporation'. These include the Coffee Industry Cooperation, Spice industry Board, Oil Palm Industries Corporation, Cocoa Board and Rubber Board among others. • DAL could develop and enact legislation to clearly identify its mandate - powers functions and responsibilities - as the main centralized agency for agriculture and livestock in PNG and outline a clear system for knowledge and information sharing from this centralized agency to the provincial divisions, commodity boards, industries and local farmers. • The revision and update of the National Agriculture Development Plan provides a key opportunity to to capture specific climate change risks and adaptation measures. In addition, the updated National Agriculture Development Plan should clearly outline a coordination framework within the sector which highlights the roles and functions of each specific entity. • The enactment of the Agricultural Administration Adjustment Bill and the Agricultural Investment Corporation Bill, are a matter of significant importance to achieve a structured and systematic form of data storage, data access, information management and dissemination. • The Productive Biosecurity Bill 2016 needs to be enacted to ensure DAL is able to address issues relating to food security through the establishment of mechanisms/systems needed to enforce/implement the respective measures introduced. • The Draft Climate Smart Agriculture Policy (CSAP) 2015-2030 needs to be finalized to ensure key stakeholders at all levels of government and civil society are provided with access to information on various options for more climate resilient farming techniques, measures for increasing productivity during natural disasters and ultimately to ensure local communities/farmers are less vulnerable to climate change risks. • The National Agriculture Research Institute (NARI) is undertaking crucial work on climate change. However, findings and key results from this work does not seem to be translating into policy changes, legal reforms or administrative directives within the DAL, the provincial commodity boards, or in key development policy frameworks or plans and objectives at all respective levels. This needs to be addressed by looking at how the NARI Council can ensure the outcomes of climate change-related research are provided to the designated offices at the various levels of government and integrated into development policies, where possible.

NAP priority sector	Key gaps and recommendations to strengthen the governance framework for adaptation
Transport	• The Department of Transport (DoT) is the key agency responsible for transport infrastructure policy and planning. DoT works closely with six separate government agencies including the Department of Works (DoW), the Civil Aviation Safety Authority, the National Maritime Safety Authority, PNG Ports Corporation, the National Roads Authority, the National Road Safety Council and the National Weather Service (NWS). • The National Weather Service (NWS) as a unit within the DoT is responsible for the collection and analysis of meteorological data for the purposes of historic and current weather reporting, and near-term weather forecasting within PNG and the surrounding region. Weather reports and forecasts are provided for general use and for specialist aviation and maritime purposes. NWS also advises on medium term climatic variation and long- term climate change. It is therefore, recommended that the DoT ensure that the NWS is fully functional through its own funding made available for the purpose of ensuring timely, effective and advanced monitoring systems in place. It is also strongly recommended for the draft Meteorological Act 2019 (MET Act) to be finalized and passed before Parliament to ensure the NWS is fully mandated to provide the crucial services needed for monitoring current and future potential climate change impacts. • The National Transport Strategy (NTS), the Medium Term Transport Plan (2014-2018) and the 2030 Transport Policy and Investment Plan (2014-2018) point to climate change as a cross cutting issue that needs to be integrated into all planning and development aspects of road, sea and air transport. The NTS is quite succinct in its details of the specific actions it plans to take in addressing natural disasters including those associated to climate change. However, the nature of this strategy, does not guarantee its implementation within the duration of the policy's endorsement. Therefore, it is recommended for the specific climate change adaptation measures proposed under the NTS to be introduced within legislation where possible, to guarantee not only implementation but continued funding as well. • All codes or regulations for the design and construction of transport infrastructure should take key climate change related risks into account to ensure infrastructure is able to withstand natural disasters and provide a sustainable solution to the challenges of accessibility, distance and isolation that many people in PNG face. There is also a need for specific climate change considerations to be included as part of the Environmental Impact Assessment (EIA) review process.
Infrastructure	• The Department of Works (DoW) is responsible for ensuring the supervision and quality control through implementation of the regulations and standards in the country, but the majority of actual design and construction of infrastructure is undertaken by the private sector. It is advisable for the DoW in collaboration with the Building industry and its various governing bodies to introduce a policy on climate building standards. This Climate Building Standards Policy or Regulation will ensure that there is an overarching framework for standards and compliance in PNG to guide the manner of building and construction/infrastructure development along a path that is more climate resilient and thus, more adaptive to climate change. • If possible, amendments to the Building Act 1971 (and amended in 2005) as well as Building Regulations, should be made to address the need for Climate resilient infrastructure and standards to be introduced or considered as part of all building development in the country.

NAP priority sector	Key gaps and recommendations to strengthen the governance framework for adaptation
	• It is important to ensure that the National Procurement Commission's decision-making based on specifications that feature climate-resilient infrastructure as a 'condition or key requirement' in the award of infrastructure contracts. Designs and construction methods must take climate-resilient features and risks into account if roads and bridge infrastructures are to withstand climate-triggered disasters and provide a sustainable solution to the challenges of accessibility, distance and isolation that many people in PNG face. There is also a need for specific CC considerations to be included as part of the EIA review process. • It's also important that there are specific advisory committees established to address the issues relating to climate risks and adaptation measures and to ensure these measures are considered as part of the planning and implementing process in all infrastructure development in the towns and cities.
Health	• Climate change or related matters such as disaster risk reduction or building resilient communities to climate change, are not issues mentioned in relation to health as a priority policy area. However, a draft policy and strategy have been developed to address this issue, which (if endorsed) will help to curtail the impacts of climate change in this policy area and across sectors. These are the National Environmental Health Policy 2021 – 2030 (Draft) and the PNG National Strategy and Action Plan on Climate Change and Health (Draft), respectively. • The National Department of Health (NDoH) is responsible for administering this policy area, its system, structures, institutions, services and personnel in PNG. Some of the health outcome priorities outlined in the NDoH's 2012-2018 strategic plan objectives include reducing malaria prevalence in high malaria endemic districts which have some potential links to the risks that arise from CC. E.g., vector borne diseases. NDoH also plays a key policy and directive role which involves regular consultations with these entities, and is also a member of the Adaptation Technical Working Group (ATWG) which meet on a quarterly basis, or when the need arises. Moreover, the NDoH also works closely with the Department of National Planning and Monitoring, particularly on the Water and Sanitation programme, which also incorporates other agencies. • There are other options available as part of key cross-sectoral issues within the National Health Plan and Policy 2011 – 2020 which relate to individual health priorities for each specific province. This could be used as a strategic opportunity to introduce the different climate change related health risks depending on those of most relevance to that area, e.g., coastal communities and health risks from sea level rise such as contamination of water (high salinity levels), damaged crops and shortage of food leading to poor nutrition. • In addition, the NDoH have an entire Health Promotion Policy which aims to get information and awareness on the key priority areas out to the local communities. The most effective way of doing this is through the Provincial Health Authorities (PHAs). The Provincial Health Authorities Act 2007 (amended 2013) covers the mandate for these entities which involves administering NDoH's key objectives at the subnational level. This involves the delivery of health services to the provinces by providing for provincial health partnerships; providing for the delivery of curative services and public health services.

2.2 Institutional and individual technical capacities

This section delves into existing and necessary technical capacities and adaptation skill sets in the four NAP priority sectors to better understand the training needs of personnel at key institutions involved in adaptation planning and implementation in these sectors (Table 2). This is achieved by: (i) identifying and describing existing skills-sets in place (management, technical, and participatory); (ii) locating these skills-sets at different implementation levels, and (iii) identifying the gaps where additional skills development is required (UNITAR 2015).

Table 2. Adaptation targets and key institutions in the NAP priority sectors. Source: PNG's Enhanced Nationally Determined Contribution (NDC).

NAP priority sector	Adaptation NDC target for 2030	Key Institutions considered in the analysis
Agriculture	10% of the total population (0.8 million beneficiaries (25% are women) have increased resilience with respect to food and water security, health and wellbeing in PNG.	Department of Agriculture (DAL) National Agriculture Research Institute (NARI)
Transport	6 million people (70% of the population) benefit from improved early warning systems/information to respond to extreme climate events. US\$172m (PGK 608m) value of building and utility infrastructure assets built/rehabilitated according to climate-resilient codes and standards.	Department of Transport (DoT)
Infrastructure	US\$1.2b (PGK 4.2b) value of transport (air, sea, and land) infrastructure and assets built/rehabilitated according to climate-resilient codes and standards.	Department of Works (DoW) National Weather Services (NWS)
Health	100% of the population benefits from improved health measures to respond to malaria and other climate-sensitive diseases in PNG.	National Department of Health (NDoH)

The assessment was undertaken through key informant interviews using a dedicated questionnaire (**Annex 1**) to identify the existence or need for managerial, technical and/or participatory capacities and/or skills at multiple levels of implementation (policy, organizational and operational). Capacities and adaptation skill sets refer to (UNITAR 2015):

Management skills include leadership, supervisory and delegation capacities within a particular institution or coordination arrangement, including programmatic or financial.

Technical skills refer to the knowledge and expertise required to understand the science in relation to climate change, including on vulnerability and climate risk, as well as in relation to the science of each sectoral priority, and other relevant skills for the identification and prioritization of specific adaptation options.

Participatory skills refer to those required for promoting and sustaining cooperation, ownership and actions with all relevant stakeholders, including sectors institutions. Participatory skills are required not

only to create a welcoming environment for cooperation and engagement but also to build ownership and create consensus, including for liaising with governmental counterparts across sectors and levels of government.

The institutional levels of implementation required for adaptation planning efforts, included (UNITAR 2015):

Policy level refers to the institutional context in which national adaptation planning occurs, including where beliefs, social values, cultural norms or national priorities/objectives are translated into policy instruments. This may include the existence of policy statements, strategy documents or legislation. Specific skill sets are required at the policy level in order to operationalize or translate said beliefs, values or national priorities. In order to do so, the assessment aimed to determine institutional capacities to, inter alia:

- Conceptualize and national adaptation policies, and the NAP itself, in response to national priorities and goals;
- Advocate for NAP policies, strategies and relevant legislation and other policy instruments as regulations;
- Oversee and advice on associated resource allocation and utilisation.

Organizational level is where the vision or goals of a policy, strategy or legislation are transformed or carried into effect. The organizational level requires of specific skills to enforce or implement mandates or strategies established at the policy level, including to put in place programs, partnerships or cooperation management arrangements. It is at this level where clear roles, responsibilities and decision-making rules should be put in place. The assessment at this level seeks to provide information on capacities to, inter alia:

- Establish coherent and official coordination structures and/or institutional coordination arrangements;
- Ensure clarity over institutions roles and mandates;
- Generate and share knowledge; and
- Encourage participation and ownership, and establishing, coordination structures or arrangements, and resulting decision-making.

Operational level is where implementation and management of adaptation policies and measures takes place. The operational level thus includes project programmatic and financial administration, monitoring, data and knowledge management, integrating evaluation outcomes in operations, etc. The assessment at this level aims to provide information on existing and required capacities for, inter alia:

- Planning and deploying resources to achieve the agreed NAP outputs, including securing staff, equipment and funds;
- Administering a project, including programmatic and financial planning and reporting;
- Monitoring and compiling implementation data; and
- Oversee and guide, and built capacities of on-the-ground implementers

Existing adaptation skills sets as well as key technical capacity gaps are described below for each one of the NAP priority sectors. Table 3 provides a summary of key findings from the assessment.

Table 3. Summary of key technical capacity gaps and needs

NAP priority sector	Key gaps and needs
Agriculture	The DAL has a solid base of technical capacities to weave climate change adaptation into its activities, but is hindered by skills and knowledge gaps, stemming from weakened leadership and governance within the institution. Greater investment in technical capacity is needed, particularly on the more technical aspects of agricultural science and technology relevant to climate change adaptation. Higher turnover rates coupled with a lack of adequate succession plans for knowledge transfer between staff have diminished staff expertise and knowledge and has led to knowledge and skill gaps among staff. In addition, the DAL faces obstacles in terms of access to credible data and the lack of adequate databases and linkages stemming not only from lack of capacity to collect technical data, but also lack of adequate databases and linkages for agriculture related information management. This in turn means that policymakers do not have access to credible and real-time data for decision-making. NARI has already implemented several programmes on climate change including agricultural adaptation programmes.
Transport	While the DoT has human and technical resources present and ready to be allocated to climate change adaptation programs, limited financial resources allocated to climate change adaptation within the department has led to delays in implementation. Moreover, capacity building is needed to build leadership skills for defining institutional mandates and vision in support of climate change adaptation, M&E of adaptation measures and policies, vulnerability assessments and adaptation options for decision-making processes, research and meteorological data, and gender and climate change. The NWS also plays a key role in monitoring and projecting weather and climate variations and issuing warnings on the negative impacts of climate change but lacks the financial resources to expand to any additional activities that DoT adaptation projects may require, such as the monitoring and projecting of climate events and linking back to long-term impact.
Infrastructure	The DoW does not have the financial or technical capacity to address climate change adaptation, nor the key data, information or funds to adequately address the challenge. With climate change adaptation a new and cross-cutting issue for the department, the lack of technical capacity has been a major obstacle for its integration into projects. Thus, although a focal point on climate change adaptation has been appointed within the DoW, the unit is still in the preparatory phase to operationalise the role, and has yet to build the manpower, technical capacity and financial resources to do so effectively. In consequence, no assessment of the costs of climate change for the DoW has been realised yet, nor an integration into the DoW's financial management of an economic appraisal of these costs. Furthermore, there is no climate change adaptation monitoring framework in place at the DoW. The process for Accreditation of DoW to Green Climate Fund (GCF) begun in 2020. The process is still under its initial states as DoW is now screened through a GCF Accreditation Requirement Checklist.
Health	There is a critical shortage of resources in PNG allocated to health, which has had negative consequences on the implementation of climate related activities. The main factor crippling PNG's health system, and in turn its capacity to work on climate change adaptation, is its budget. Manpower is also in shortage in the health sector, with those few available also lacking in technical skills and knowledge on climate change adaptation. At present, there is only 8 officers in the whole EH branch, with just one officer working on SEHCC, responsible for leading all climate change initiatives within the branch along with 4 of its own sub-programmes. In addition, the EH branch is the lowliest funded branch within the entire NDoH with an annual budget of less than K100,000.

- **Managerial capacities /skills**

In the agriculture sector, respondents expressed satisfaction with the managerial capacities / skills in place at DAL for the integration of adaptation into sectoral policies or strategies and into the institution's activities. However, challenges remain in terms of providing a mandatory responsibility for climate change adaptation in the sector, finalizing the Climate-Smart Agriculture Policy, and ensuring that subsector plans are aligned with the NAP. While efforts have been made to incorporate climate change adaptation into the Department's activities, the lack of a policy guiding adaptation action in the sector results in limited organisational leadership, as well as in the lack of a dedicated financing framework, and associated budget, manpower and resources to undertake adaptation activities. DAL is yet to establish a focal point with a climate change adaptation mandate. It is anticipated that the revised DAL Corporate Plan (in progress) will place emphasis on the establishment of a focal point/unit for climate change within the 'Food Security and National Sustainable Agriculture Programme' at DAL. Frequent changes in the government, restructure and reorganization of DAL has also created challenges for implementation of key policies, as well as for effective communication, cooperation and coordination between the executive management, middle management and staff at the operational level that weakens the overall organisational performance.

- **Technical capacities /skills**

DAL has personnel with the necessary technical skills and knowledge to undertake adaptation actions. However, this knowledge resides mainly in senior and experienced staff, and there is not a system in place to transfer knowledge and capacitate young officers. Access to real-time and credible information related to climate change impacts and adaptation options for decision making is limited. In addition, capacities are needed in DAL to put in place a sectoral climate change adaptation monitoring framework. Technical capacities are also needed in DAL for assessing the costs of climate change to strengthen adaptation planning and inform policy development. Priorities to strengthen technical capacity/skills are included in section 3.3.

NARI has made important progress in implementing climate change adaptation actions with support of development partners. For example, with the support from the Australian Centre for International Agricultural Research (ACIAR), NARI is implementing climate-smart agriculture measures and developing seasonal climate advisories as a decision tool for seasonal climate forecasts provided by the NWS. NARI's work on climate change includes capacity building of partners through training of trainers at the community level, testing and improvement of training and learning materials; partner engagement for development of resource centers and pilot sites; and research studies related to climate change resilience.

- **Participatory capacities /skills**

While gender mainstreaming is recognized as an important issue at the policy level, a gender gap assessment has yet to take place. At the organizational level, DAL does not have a functioning mechanism or arrangement for intra and/or cross sectoral coordination on climate change adaptation, nor a framework in place to promote a gender-responsiveness approach. One of the main gaps identified by respondents was regarding the role of NGOs, academia and the private sector in adaptation planning, as these roles are not clearly defined in the institution. The CSAP provides an opportunity to incorporate a gender responsive approach, promote stakeholder empowerment and participation, as well as knowledge and information sharing.

- **Managerial capacities /skills**

At the policy level, there is not a clear adaptation mandate for the sector, and adaptation priorities have yet to be integrated into sectoral policies to guide the activities of the DoT. The lack of overarching policies providing a mandate for adaptation result in limited activities focused on climate change adaptation. However, the Australia-PNG Transport Sector Support Programme (TSSP) in consultation with the DoT is now drafting a “Climate-Resilient Transport Infrastructure Development Policy”, which could address this gap. Key capacity gaps identified at the organizational level include the lack of a climate change adaptation focal point, absence of a sectoral financing framework for adaptation.

- **Technical capacities /skills**

Technical capacities are needed in DoT for assessing the costs of climate change to strengthen adaptation planning and inform policy development. DoT has adequate human and technical resources for collecting weather data and climate parameters through the National Weather Service (NWS), as well as the technical skills required to conduct adaptation planning and establishing monitoring and reporting systems. However, DoT needs financial and technical support to plan and implement adaptation measures.

TSSP is working with Government of PNG agencies, collaborating with multilateral partners and supporting local road contractors to build climate resilient roads, bridges and wharves. This programme is also providing training on hydrological and geotechnical modelling and feasibility studies; as well as technical support for adopting improved flood design standards, sound engineering practice and tightened contracting and compliance checks. In addition, there are climate-resilient initiatives being undertaken in PNG by other agencies (such as PNGO Ports Ltd for the Climate-resilient Alotau Wharf). This provides an opportunity to establish a functional training programme for personnel at DoT on climate related issues, that can also share best practices and experiences from other organisations and the private sector.

The NWS plays a vital technical role in monitoring and projecting weather and climate variations and issue warnings on the negative impacts of climate change on agriculture, transport, and health including the movement of people. However, the NWS is under resourced, and all of its budget is directed to maintain its 66 staff members and keep up with its routine operations. This results in limited capacity from NWS to implement any new activities. Monitoring and projecting climate events and long term impacts requires specialized technical skills and knowledge including tools and manpower. However, the country has limited climatologists requiring specialized training only available overseas. NWS has undertaken important collaborations, including with the the Australian Bureau of Meteorology, Commonwealth Scientific and Industrial Research Organization (CSIRO). Through this collaboration climate projections for PNG were developed to inform planning and decision making.

- **Participatory capacities /skills**

At the policy level, DoT has the capacity for high-level decision making, and at the organizational level, there is a high level of coordination, communication and cooperation established through the Transport Sector Coordination Monitoring and Implementation Committee (TSCMIC). This capacity for high-level decision making and coordination, provides an opportunity for adaptation planning and implementation. DoT doesn't have a mandate for gender mainstreaming or a gender gap assessment in place. Key gaps at the organizational level include the absence of mechanisms or structures for engagement of non-stakeholders in adaptation planning; and lack a gender-responsiveness approach/framework in place.

Infrastructure

- **Managerial capacities /skills**

The DoW has made important progress in raising awareness on the importance of climate change within the institution, including at executive level, and particularly since 2020 when the NDC and the GCF Country Programme were developed. While DoW has incorporated a mandate for climate change for the institution, adaptation priorities have yet to be established in the institution's overarching policies and programs. DoW does not have a policy and strategy to address climate change adaptation, and has yet to develop standards or codes of practice to promote the construction of climate resilient infrastructure.

DoW in partnership with the USAID Climate Ready project is now progressing on the development of the sector specific policy on climate change. In addition, DoW was selected as a National Implementing Entity for the Green Climate Fund and begun the accreditation process in 2020. While DoW has done important efforts to strengthen the institution's climate change action, there is an important need to raise awareness and capacity on the risks and opportunities posed by climate change in infrastructure so that the Department's policies, programs, strategic plans, procurement processes and activity plans reflect or capture the need to adapt to climate change.

At the organizational level, the Department has recently designated a climate change/climate change adaptation focal point, and established climate change positions. However, there is need to develop and build capacity to reflect the climate change mandate in the institution. In addition, as a result of limited formal adaptation mandates and lack of integration of adaptation into institutional plans/programs, the institution does not have financial and human resources allocated for climate change adaptation.

- **Technical capacities /skills**

One of the key gaps identified at the policy level was the limited capacity to assess the costs of climate change for infrastructure, which could support the high-level dialogue to increase awareness on climate risks and opportunities for the sector, as well as the development of plans and strategies to guide the institution's efforts to increase infrastructure's resilience to climate change. Technical know-how is also required to understand climate risks and impacts in the infrastructure sector. Another key gap identified was the limited human and financial capacity to establish climate change adaptation monitoring frameworks for the sector.

According to respondents, there is capacity in terms of human resources to apply adaptation planning and vulnerability assessment tools in the institution. However, the Department has limited financial and technical capacity to undertake these tasks. In addition, the Department does not have key data and information to address climate change adaptation. DoW has recently partnered with USAID Climate Ready and CCDA to undertake capacity building activities.

- **Participatory capacities /skills**

Gender is key consideration for the DoW. The Department has a strong mandate for gender mainstreaming and has developed a Gender Policy that addresses gender in the Department and in all its projects. At the organizational level, the Department has established a gender-responsive approach for all projects and programmes undertaken, as part of the institution's aim to address social and environmental issues. However, opportunities exist to strengthen these efforts by increasing capacity on gender-responsive approaches in the context of climate change adaptation.

At the policy level, there is not a clear mandate and/or functioning mechanism for high-level decision-making on climate change adaptation. However, at the organizational level, DoW has made important progress in structuring arrangements for cross sectoral coordination, working closely with CCDA and development partners to identify opportunities to build the Department's capacity and improve its systems for addressing climate change impacts. However, there is a high level "Working Committee" comprising of Secretaries of the DoT six separate government agencies (including DoW). This high level 'working group' is the conduit for the planning and coordination process for policy development and updating on the implementation of policies.

DoW has presence in almost all provinces of PNG, and is widely connected to other agencies of the government both at the national and sub-national level. DoW has recently signed a MoU with the Provincial Governments and District Development Authorities (DDAs) where the Provincial Government and DDAs administer the provincial and district roads while DoW administers the national roads and the Connect PNG-Corridor Project. The department also engages with various development partners.

A mechanism/arrangement for engaging non-state stakeholders is in place. However, this mechanism has been set up only in donor funded projects addressing other environmental issues. Therefore, opportunities exist to strengthen/formalise the current stakeholder engagement mechanism to include climate change adaptation planning.

Health

- **Managerial capacities /skills**

The health sector is confronted with several challenges ranging from poor health facilities, critical shortage of manpower and low health budget. NDoH is supported with several action plans and policies including its Corporate Plan 2017-2020 that sets "out clear priorities and functions in supporting health sector reforms, strengthening primary health care and service delivery". Its "Health Sector Workforce Enhancement Plan" aims to resolve the critical manpower shortage; and its "capacity building for health leaders" aims at effective leadership and good governance across the sector. Provincial and District Health services at the sub-national level are under the administration of the Provincial Health Authorities (PHAs).

The draft "National Environmental Health Policy (NEHP) 2021-2030" provides opportunities to strengthen capacities at the policy level, by providing a clear mandate for the sector to address the health impacts of climate change. This strategy will be followed by the "PNG National Strategy and Action Plan on Climate Change and Health 2020-2030", which is also currently being drafted.

The National Health Service Standards (NHSS) (2010-2020) is a policy that requires all new health facilities designed for the public sector after 31st December, 2010 to be designed and constructed in accordance with the NHSS. The NHSS classified the health facilities into 7 levels. Levels 1-4 constitutes the rural health services while levels 5-7 are hospitals. Level 4 is referred to as a "district hospital" but not many such facilities are in the country. Most of these health facility designs did not feature climate resilience.

For the public funded health projects, once a Design Brief has been locally developed and endorsed by the NDoH for a Project and the capital funds have been appropriated, Officers of the NDoH will assist to facilitate the procurement process for the design, construction, project coordination and supervision. This process provides important opportunities to incorporate climate-resilient features into the planning and

design of health infrastructure. The procurement process could also be strengthened by ensuring that National Procurement Commission (NPC) and the Provincial Tenders Board (PTB) decision making process considers whether the private sector bidder is able to deliver a climate-resilient health infrastructure.

- **Technical capacities /skills**

Senior staff at the NDoH has important expertise, experience and skill sets. However, absence of program or concerted effort to transfer knowledge and skills from senior to junior staff, has resulted in knowledge and skill gaps within the Department. Climate change is a new area and many officials have yet to fully understand the health impacts of climate change, thus specialized training is required. There is also the need to strengthen the curricula at the national level, to incorporate climate change issues into health education. For example, Environmental Health is a course taught at colleges, but there are not specific courses focusing on climate change.

- **Participatory capacities /skills**

The NDoH has important experience and capacities for coordination and engagement with various stakeholders. The Department has a working relationship with CCDA through its 'Adaptation Technical Working Group and also CEPA on Environmental Health Impact Assessment. NDoH also works closely with the Department of National Planning and Monitoring especially on the Water and Sanitation Programme including other agencies. NDoH works closely with international institutions such as UNICEF, WHO, Asian Development Bank, Church-Health Services and NGOs. The NDoH has transferred powers to the PHAs without building capacities of the health care system at the sub-national level, which has created challenges for delivering health services at the provincial level.

2.3 Capacity building/training priorities

As seen in section 2.2, climate change adaptation is an issue that has gained importance in recent years. All institutions considered climate change adaptation as an important issue and aimed to be involved in adaptation planning to mainstream adaptation into their respective sectors. In addition, representatives from all institutions consider that their respective sectoral institution has the necessary human resources to undertake climate change adaptation action if provided by the necessary financial and technical resources, as well as with high-level support and leadership.

Challenges remain in terms of consolidating policy and institutional frameworks to provide clear mandates on adaptation to the institutions, and allow the subsequent allocation of financial, human and technical resources for implementation. In the context of the NAP process, several topics/themes in which capacity building is needed were identified based on a list of options included in the questionnaire (Table 4). Respondents also identified priority capacity building activities needed to effectively design, implement and monitor climate change adaptation measures and engage in the NAP design and implementation process. Priority themes/topics per sector are shown in Table 5.

Table 4. Capacity building activities needed.

Capacity building activities	Agriculture	Transport	Infrastructure	Health
Intersectoral coordination and building partnerships				
Leadership skills for defining institutional mandates and vision to support climate change adaptation				
Policy and plan development				
Design and implementation of adaptation measures / projects / processes				
Developing investment plans / cost-benefit analysis				
Mobilising financial resources and budgeting				
Private sector engagement to support climate change adaptation				
Monitoring and Evaluation (M&E) of adaptation measures / projects				
NDC and processes related to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement				
Awareness raising on the impacts of climate change and climate change adaptation				
Vulnerability assessments and adaptation options for decision-making processes				
Research and meteorological data				
Gender and climate change				
Traditional knowledge relevant for climate change adaptation				

Table 5. Priority needs for capacity building activities at the policy, organisational and operational level in the four priority sectors. Note: 1 is that capacity/skill with the highest priority.

Capacity or skill	Implementation Level			Priority identified per institution			
	Policy	Organisational	Operational	Agriculture	Transport	Infrastructure	Health ⁵
1. Awareness raising on the impacts of climate change and climate change adaptation			Agriculture, Infrastructure	2		2	
2. Design and implementation of adaptation measures /projects/processes	Agriculture	Agriculture	Agriculture, Infrastructure	2		1	1
3. Developing investment plans / cost-benefit analysis	Agriculture	Agriculture	Agriculture	2			
4. Gender and climate change	Agriculture, Infrastructure			1	5		
5. Leadership skills for defining institutional mandates and vision to support climate change adaptation		Agriculture		1			
6. Mobilising financial resources and budgeting		Agriculture, Infrastructure	Agriculture	2		5	
7. Monitoring and Evaluation (M&E) of adaptation measures / projects	Agriculture	Agriculture, Transport	Agriculture, Infrastructure	3	4	4	
8. Policy and plan development	Agriculture, Infrastructure	Agriculture		1		1	
9. Private sector engagement to support climate change adaptation			Infrastructure			2	
10. Research and meteorological data	Agriculture		Transport	1	2		
11. Research/monitoring equipment and other relevant capacity building needs			Transport			3	
12. Technical capacity building skills			Transport		1		1
13. Vulnerability assessments and adaptation options for decision-making processes	Agriculture	Transport	Transport, Infrastructure	1	3	3	1
14. Transport Infrastructure Design Code			Transport				

⁵ Information from the health sector was drawn from the key informant interviews only, as responses in the questionnaire were not available at the time of drafting this report.

III. CAPACITY DEVELOPMENT APPROACH

3.1 Scope and objectives

The assessment of adaptation skills conducted in the context of the institutional capacity assessment presented in section II constitutes a key source of information to develop a capacity building programme tailored to PNG's institutional capacities needs. The capacity development plan to be implemented in the context of the NAP project aims to increase national, regional and provincial capacities for adaptation planning and implementation. However, the capacity development plan is also intended to be used beyond the NAP project implementation as part of a progressive capacity building process, to strengthen capacities for the formulation of sector specific adaptation plans.

The capacity development plan does not directly include issues related to the enabling environment (governance framework) as it is **targeted to develop individual capacities that promote a change in attitudes and behaviours, increase knowledge, and develop skills**. However, developing a robust base of individual capacities and skills across institutions can support strengthening of the enabling environment in the medium and long-term, as these skills will contribute to development of sectoral policies, effective monitoring and evaluation systems, strengthened information management, and increased awareness on adaptation to climate change.

The specific objectives of the capacity development plan are to:

- Enhance capacities of institutions to understand the nature of the climate problem as it pertains to PNG, such as the implications of climate change for various economic activities and livelihoods, and for human and societal well-being.
- Increase capacity to formulate, implement, monitor and evaluate national actions to adapt to the expected adverse impacts of climate change and to influence policy making.
- Increase capacity to mobilise funds to implement national adaptation actions.
- Enhance capacities in sectoral institutions to address crosscutting issues such as gender responsiveness in the context of climate change adaptation.

3.2 Target audience

The capacity development plan is targeted particularly at those making and implementing policies and investment plans for the agriculture, transport, infrastructure and health sectors—such as the technical staff in DAL, DoT, Dow and NDoH, CCDA, provincial authorities, and in other relevant government or non-government organizations.

In alignment with the NAP project results framework, the total number of individuals, who are intended to benefit from capacity building, by the end of the first year, is at least 150, with the following targets:

- Managerial and technical staff in national and sectoral institutions, and other sectoral stakeholders: 50 (25 women and 25 men)

- Provincial staff and local stakeholders: 100 (50 women and 50 men)

In addition, the capacity development plan will contribute to the sensitization of key stakeholders being undertaken as part of the Communication Strategy developed through the NAP project.

3.3 Principles

- Capacity building efforts must be country driven; build on, and respect, existing capacities, local knowledge and know-how.
- Capacity building activities should be monitored, evaluated and systematized.
- Capacity building activities should include learning by doing; and be continuous, progressive and iterative. The more complex the skill, the more the importance of learning-by-doing, by working alongside experts over longer periods.

3.4 Capacity building themes

The themes included in the capacity building programme mainly draw from the priority capacity building needs identified in sections 3.2 and 3.3, taking into account the technical capacity gaps identified through previous assessments described in section 2. While the capacity building plan provides examples of the rationale and specific topics that could be included in each theme, **it is key that a training programme for each one of the key themes is developed in collaboration with the institutions that will deliver the trainings.**

A. Expected impacts of climate change in the agriculture, transport, infrastructure and health sectors, costs and opportunities	
Objectives and target audience	This key theme aims to raise awareness on the need for climate action and to build resilience to climate change. The theme is targeted to policy makers, managerial and technical staff in the DAL, DoT, DoW, NDoH, Department of Finance (DoF), DNPM, CCDA, as well as staff working at the regional and/or provincial level.
Expected outcome	This key theme is targeted to support policy design and sectoral adaptation planning by: a) Raising technical capacities for developing sector-specific vulnerability assessments to better understand key risks and expected climate impacts in each sector. b) Increasing awareness on the costs of climate change and benefits of climate change adaptation at the executive, management and technical levels.
Rationale	As part of the NAP process, countries are encouraged to conduct sector-specific impact, vulnerability and adaptation assessments, so that adaptation measures respond to key climate risks and address vulnerabilities. Understanding economic costs of climate change and the benefits of climate change adaptation measures can support policy and plan development, as well as the allocation of the necessary resources to implement adaptation actions. For example, a recent study developed by the Global Commission of Adaptation (GCA), identified that investing US\$1.8 trillion globally in early warning systems, resilient infrastructure, improved dryland agriculture crop production, mangrove protection

	and resilient water management between 2020 and 2030 can generate revenues of US\$7.1 trillion in total net benefits (GCA, 2019). At the same time, investing in resilient infrastructure can avoid costs associated to damages to physical infrastructure. According to The World Bank (2019), there are important costs and damages to people and firms due to the lack of resilient infrastructure. In low- and middle-income countries costs associated to damage to power generation and transport infrastructure resulting from natural disasters are estimated to be about US\$18 billion a year; while costs associated to infrastructure disruptions range between \$391 billion and \$647 billion a year, with 10% to 70% of the disruptions being explained by natural hazards (World Bank 2019). In addition to better understanding the impact and costs of climate change in specific sectors, the capacity gap assessments undertaken in PNG have identified the need to develop leadership skills for plan and policy development, as well as to promote that skills and capacities acquired by staff are shared throughout institutions to make capacity building efforts more sustainable in the long term.	
	Activities	Approach
	A.1 Hands-on training on vulnerability assessments and climate risks in priority sectors	This activity aims to develop vulnerability assessments in each NAP priority sector. Experts in conducting vulnerability assessments should work hand in hand with technical staff from relevant institutions promoting a learning by doing approach. This capacity building will also strengthen capacities for the formulation of sector-specific adaptation plans.
	A.2 Access and use of climate information and monitoring	This activity will support trainings on access and use of climate information relevant to the NAP priority sectors. This activity should be designed in close collaboration with the NWS.
	A.3 High-level dialogue on climate change adaptation.	This dialogue should include high-level officials from the institutions in the four priority sectors, CCDA, as well as DNPM and DoF. General information on climate change impacts per sector, costs and opportunities should be available to inform the high-level dialogue. The high-level dialogue aims to support: - Institutional mandates on climate change adaptation - Establishment of climate change adaptation focal points - Mandate to move forward draft policies related to climate change/climate change adaptation.
	A.4 Leadership skills for defining institutional mandates and vision to support climate change adaptation	Targeted to management and technical staff in DAL, DoW, DoT and NDoH. This training should be informed by the organisational structure and management of each institution.
	A.5 Training of trainers program targeted to institutional climate change/climate change adaptation focal points	The trainers of trainers program will be targeted to staff in CCDA, as well as focal points in DAL, DoT, DoW, NDoH, as well as members of the Adaptation Technical Working Group. The training programme should develop dissemination and training materials on climate change adaptation in PNG, and capacitate focal points on teaching and disseminating these training materials within their institutions.

B. Design, implementation and monitoring of adaptation measures	
Objectives and target audience	This theme aims to increase knowledge and understanding of potential adaptation options that could be undertaken to address key climate risks in the NAP priority sectors. Training activities in this theme are targeted to managerial and technical staff of sectoral and provincial institutions, members of the ATWG, CCDA and DNPM.
Expected outcome	This key theme is targeted to support policy design and sectoral adaptation planning by: a) Increasing technical capacities for the identification of sectoral adaptation measures to address key climate risks. b) Raising awareness and knowledge on how to support a gender-responsive approach in the design and implementation of climate change adaptation policies and measures. c) Increase knowledge on best practices for resilient infrastructure and provide technical support for developing guidelines/standards in the context of PNG.
Rationale	Designing an adaptation strategy or plan requires decision makers to carefully assess measures or options that address the country's particular vulnerabilities and key risks. Managerial and technical staff at key institutions in the NAP priority sectors, as well as provincial authorities will need technical knowledge and skills to Identify priority adaptation options when developing sector-specific or provincial adaptation plans. Assessing and prioritizing adaptation options can support decision makers to define those options that address climate risks, but also offer opportunities to achieve broader development goals including improved livelihoods, reduced poverty, increased equality and sustainability. There is broad recognition that oftentimes climate change impacts women and men in differ manner. The differentiated relationship between women and men with nature can play a crucial role in increased climate action as studies show women are more likely to be early adopters of sustainable behaviours. On the other hand, the design of gender-blind adaptation policies may exacerbate gender-based inequalities and moreover increased women's and girl's vulnerability to climate change impacts (UNFCCC 2020). In PNG, institutions in the NAP priority sectors have made different progress in mainstreaming gender into their activities. Opportunities exist to strenghten these efforts by increasing capacity on gender-responsive approaches in the design and implementation of climate change adaptation measures. The policy, legal and capacity assessment revealed that there are opportunities and entry points for strengthening adaptation action through the design and development of resilient infrastructure. However, capacities are needed to establish standards/codes and guidelines for a systematic effort in the country, including through procurement processes.
Activities	Approach
B.1 Identifying and prioritizing adaptation options in each priority sector	This training aims to increase understanding of potential adaptation options to address key climate risks in the NAP priority sectors. The activity should be informed by vulnerability assessments and provide a wide range of

	relevant examples of initiatives/measures undertaken to address similar climate risks in other countries in the region. The training should also provide information on relevant characteristics or features of adaptation options (e.g. timing and flexibility, avoidance of maladaptation, gender-responsiveness, feasibility, etc.) This training should also cover best practices to prioritize adaptation options, including recommended approaches and methods, and deepen the understanding of limitations and advantages from each method. The training should also include practical sessions on cost-benefit analysis, to allow participants to increase their understanding on how to assess economic costs and benefits of adaptation options. This training should provide specific/tailored courses/capacity building workshops for each one of the NAP priority sectors.
B.2 Gender-responsive climate change adaptation actions	This training course/workshop will focus on how to promote a gender-responsive approach for adaptation planning and implementation. The training should draw on existing best practice and experience in PNG in gender mainstreaming, providing examples of how institutions could build on these practices when planning and implementing adaptation options. The training should also increase awareness on how climate change impacts may impact women and men in different ways, and provide concrete examples that are relevant to PNG's context.
B.3 Best practices and guidelines in designing standards for resilient infrastructure	This activity aims to increase understanding on best practices for developing design standards for resilient infrastructure systems such as power, water and sanitation, and transport. Experts providing the training should work hand in hand with technical staff from relevant institutions promoting a learning by doing approach. This activity should also aim to share experiences and lessons learned from the TSSP, as well as other initiatives in the country working on resilient transport infrastructure, including the private sector. This learning by doing activity should result in the development of guidelines/standards for the design of resilient infrastructure in PNG.
B.4 Developing a monitoring and evaluation system of adaptation measures in each sector	This activity aims to support a learning by doing training program focused on developing/strengthening a system to monitor and evaluate adaptation measures. The system should include a phased approach and focus first on the NAP priority sectors. It should also ensure alignment with the NDC and NAP, as well as streamline processes for the reporting on adaptation to the UNFCCC in the context of the Enhanced Transparency framework.

C. Climate change adaptation finance	
Objectives and target audience	This theme aims to increase understanding on climate change adaptation finance, as well as increase abilities to increase access to different financing sources. The training activities included in this theme aim to provide a comprehensive program on climate change adaptation financing, and should be conducted progressively, starting with C.1 and ending in C.4. Training activities are targeted to relevant personnel in the DAL, DoT, DoW, NDoH, DoF, DNPM, CCDA, as well as staff working at the regional and/or provincial level. The training programme for this theme should be designed in close collaboration with the CCDA as the NDA for the GCF, as well as other institutions supporting readiness efforts in the country.
Expected outcome	This key theme is targeted to support improved access to adaptation financing by: - Increasing understanding of different sources of adaptation finance relevant for PNG, as well as barriers and opportunities. - Increase capacity to develop project concepts and funding proposals - Increase capacity to mobilize resources from the private sector to implement adaptation projects - Increase awareness and understanding on opportunities to mainstream adaptation into budgeting and procurement processes.
Rationale	Implementing NDC adaptation commitments as well as sector specific adaptation plans will require the mobilization of substantial resources, raising the need to increase financing sources and strengthen capacities to overcome financing barriers. In addition, implementation of adaptation measures in the NAP, NDC and sector-specific plans will require a whole-of-government approach, involving both the public and private sectors, and where finance and planning agencies take a central role. The capacity gap assessments conducted in the country have highlighted the need to increase understanding of climate finance opportunities, strengthen engagement with the private sector, as well as develop skills for the identification and formulation of bankable climate change adaptation projects.
Activities	Approach
C.1 Climate change adaptation financing and developing bankable projects	This training program includes two modules, which could be developed as different activities or as part of a semi-intensive course on adaptation financing. This training program should be targeted to officials planning and implementing adaptation measures in sectoral and provincial institutions, as well as other non-government organisations that could support project design and implementation. The proposed modules and topics are: I. Financing climate change adaptation. The training should include, among others: - Rationale for adaptation projects (additionality and differences between adaptation and development projects). - Sources of finance for adaptation projects that are relevant for PNG (including national, international and private sector sources)

	- Different financial instruments (e.g in addition to grants, projects can include loans, guarantees or other financing instruments) II. Developing bankable projects This hands on training should increase understanding of key concepts and elements to consider when developing an adaptation project proposal. This training should also include a wide range of examples to support the understanding of key concepts. In addition, participants in the course will work in developing a concept note for the GCF, as a way to put in practice the concepts explained during the training. Potential topics that could be included are: - Describing the the context and describing need for climate change adaptation, and the project contribution to adapt/increase resilience - Relevant elements for project design (impact potential, paradigm shift potential, sustainable development, recipient needs, country ownership) - Project structuring (financing instruments) - Developing the project results framework (including monitoring and indicators). This training activity should also develop knowledge products and tools that can be used to replicate the trainings, supporting a training of trainers approach.
C.2 Private sector engagement to support climate change adaptation	This activity includes capacity building and technical support to identify opportunities to mobilise private sector financing for climate change adaptation. Key topics to be covered through analytical products include: - Key potential sources of private finance at the international and national levels, barriers for accessing these sources and recommendations on actions/measures to tackle financing barriers. - Opportunities to establish public-private partnerships. Training workshops should be informed by analytical products produced in the context of this activity. In addition, knowledge products should be produced. This training program should be developed in close collaboration with CCDA and the Climate Ready project funded by USAID.
C.3 Mainstreaming climate change adaptation in budgeting and procurement processes	This activity includes capacity building and technical support to mainstream adaptation into budgeting and procurement processes, with an emphasis on public procurement for infrastructure projects in the NAP priority sectors.
C.3 Developing investment plans	Using the analytical inputs and resources developed in activities B.1-B.3, this training programme will support the elaboration of an investment plan for one of the NAP priority sectors. The investment plan should be conducted taking into account adaptation targets in the NDC, as well as measures included in the NAP and sector-specific adaptation plans.

3.5 Tracking and assessing capacity building efforts

Measuring progress of capacity building efforts and their effectiveness is important to assess the results from these efforts, but also to allow for course-correction. Systematizing and tracking capacity building activities is also important to promote the efficient use of resources by using existing materials and knowledge products and avoiding repetition. Therefore, each training session/activity should have specific tools to evaluate the training conducted, and gather feedback from participants on the knowledge/skills acquired. In addition, throughout the implementation of the capacity building programme it is encouraged to develop and maintain:

- a) A database of capacity building activities conducted, including participants' evaluation, number of people trained (differentiating women and men), topics covered and materials/knowledge products produced, and technical experts engaged.
- b) A roster of experts drawn from local technical agencies and academic institutions in PNG with technical expertise associated to the key themes, and who could provide capacity training to other government officials.

Both the database and roster of experts could be managed by the CCDA in collaboration with the NAP project. To assess and monitor the capacity development plan, the following indicators are suggested:

Indicator	Baseline	Target	Progress	Description/supporting evidence
Outcome				
Managerial and technical staff in national and sectoral institutions, as well as other sectoral stakeholders trained in key themes to support national adaptation planning	0	50 (25 women and 25 men)		
Increased capacity and awareness on climate change adaptation of provincial staff and local stakeholders	0	100 (50 women and 50 men)		
Outputs				
Number of sectoral vulnerability assessments conducted in collaboration with national staff at key institutions	0	2		
Number of sectoral experts trained in implementation strategies for adaptation (developing and implementing projects, accessing funding, gender)	0	50		
Number of training programmes to strengthen the capacity of national experts in monitoring and evaluation.	0	4		
Number of climate change/climate change adaptation focal points established	1	4		
Number of trainings replicated/expanded as part of a training of trainers programme	0	2		

IV. WORKPLAN

- To be determined by Implementor of Training Program

REFERENCES

ECBI (2020). Pocket Guide to Capacity Building.

https://ecbi.org/sites/default/files/2020%20Capacity%20Building%20Guide_1.pdf

Global Commission on Adaptation (2019). Adapt Now: A global call for leadership on climate resilience

<https://gca.org/reports/adapt-now-a-global-call-for-leadership-on-climate-resilience/>

Global Green Growth Institute (2019). CCDA Capacity Needs Assessment Towards GCF Requirements.

Papua New Guinea Capacity Building on Climate Change Project Identification and Development Project

LDC Expert Group 2012. Technical guidelines for the national adaptation plan process

<https://unfccc.int/topics/adaptation-and-resilience/workstreams/national-adaptation-plans-naps/guidelines-for-national-adaptation-plans-naps>

NAP Global Network (2020). The National Adaptation Plan (NAP) Process

<https://napglobalnetwork.org/wp-content/uploads/2020/08/napgn-en-2020-NAP-Process-FAQs.pdf>

Pacific Islands Forum Secretariat (2019). Options for Strengthening Climate Finance Coordination and Accessibility in Papua New Guinea

The World Bank (2019). LIFELINES The Resilient Infrastructure Opportunity.

<https://openknowledge.worldbank.org/handle/10986/31805>

UNFCCC (2020). Gender and Climate Change Brief for the Adaptation Committee

https://unfccc.int/sites/default/files/resource/Brief_Gender%20in%20the%20work%20of%20the%20AC.pdf

UNITAR (2015). Skills Assessment for National Adaptation Planning. How countries can identify the gap.

<https://www4.unfccc.int/sites/NAPC/Documents/Supplements/UNITAR%20sanap%202015.pdf>

USAID Climate Ready and CCDA (2018). Joint Organizational Assessment Report.

Institutional Capacity Assessment for the National Adaptation Planning Process in PNG

Assessing national institutional capacities in relation to climate change adaptation is a key element of the national adaptation planning process (NAP). Adaptation efforts conducted to date in PNG constitute a robust base of individual capacities and skills across governmental and non-governmental actors, institutions and entities. However, more detailed understanding of capacity needs and gaps in relevant institutions is required to develop strategies to address these needs for an effective and efficient implementation of the NAP process. This survey aims to identify the existence or need for managerial, technical and/or participatory capacities and/or skills at multiple levels of implementation -policy, organizational and operational-within and across relevant institutions with a role in the development and implementation of PNG's NAP.

General Details

1. Name	
2. Institution	
3. Position	Decision maker / Managerial ☐ Technical staff ☐ Administrative / finance staff ☐
4. Gender	F ☐ M ☐

Part 1: Institutional Capacities Assessment

5. Please provide a quantitative assessment to each question below considering:

1 – Very low or inexistent

2 - Low

3 – Medium, less than 50% of satisfaction with the statement

4 – High, 75% of satisfaction with the statement

5 - Optimal, 100% of satisfaction with the statement

N/A Not applicable

Questions regarding Institutional Capacities / Skill	1	2	3	4	5	N/A	Does not know	Additional Comments
POLICY LEVEL – Beliefs, political ideals, government and other organizational vision, goals and priorities								
Managerial capacities / skills								
Is there a climate change adaptation mandate for the sector relevant to your institution and/or have climate change adaptation priorities been integrated into the overarching sectoral policies or strategies that guide the institution's activities?								
Where there is a climate change adaptation mandate for the sector, to what extent is this reflected in your institution?								
To what extent has climate change adaptation been integrated in your institution's plans, programs, projects?								
Technical capacities / skills								
Have the costs of climate change in your respective sector been assessed?								
Participatory capacities / skills								
Is there a clear mandate for gender mainstreaming and/or a gender gap assessment in place?								
Is there a clear mandate and/or functioning mechanism for high-level decision-making on climate change adaptation?								
ORGANISATIONAL LEVEL – how people, groups and organizations are organized, managed and function								
Managerial capacities / skills								
Has your sector / institution designated climate change adaptation focal point(s)?								

Where climate change adaptation mandates / priorities have been integrated into institutional plans, programs, projects, to what extent this is reflected in financial, human and/or technological resources allocated?								
Does a sectoral climate change adaptation financing framework exist?								
To what extent is the economic appraisal of sectoral climate costs integrated into the financial management of your institution?								
Technical capacities / skills								
Is there a sectoral climate change adaptation monitoring framework in place? to what extent this is reflected in financial, human and/or technological resources allocated?								
Participatory capacities / skills								
Is there a functioning mechanism /structure/arrangement for intra and/or cross sectoral coordination on climate change adaptation?								
Is there a gender-responsiveness approach / framework in place?								
If there is a gender-responsiveness approach / framework in place, to what extent is this reflected in your institution's structure?								
Is the role of subnational governments or decentralized sectoral entities in adaptation planning clearly defined?								
Is the role of NGOs, academia and the private sector in adaptation planning clearly defined?								
Is there a functioning mechanism /structure/arrangement for non-state stakeholders' engagement in adaptation planning in your sector?								
OPERATIONAL LEVEL – Project administration, knowledge sharing, skills development, monitoring								
Managerial and technical capacities and skills								
Are there financial/human/technical resources in your institution allocated to apply adaptation planning or vulnerability assessment tools in your sector / institution?								
Are there financial/human/technical resources allocated to apply adaptation planning or vulnerability assessment tools in subnational governments or decentralized sectoral entities?								

Are there financial/human/technical resources in your institution allocated for establishing, monitoring and reporting on climate change adaptation indicators specific to your sector?								
Are there financial/human/technical resources in your institution allocated for collecting weather data or climate parameters regularly?								
Are there financial/human/technical resources in your institution allocated for providing sectoral beneficiaries or affected population with seasonal forecasting information relevant to their sectoral climate change adaptation actions?								
Are there financial/human/technical resources in your institution allocated for building capacities related to climate change adaptation within the institution?								
Are there financial/human/technical resources in your institution allocated for building stakeholder capacities / raising awareness on climate change adaptation?								

Part 2: Capacity building needs and priorities

1. In which areas are capacity building activities needed in your institution to increase capacity to plan and implement climate change adaptation in the short and medium-term? (Please mark with an X)

Intersectoral coordination and building partnerships	
Leadership skills for defining institutional mandates and vision to support climate change adaptation	
Policy and plan development	
Design and implementation of adaptation measures / projects / processes	
Developing investment plans / cost-benefit analysis	
Mobilising financial resources and budgeting	
Private sector engagement to support climate change adaptation	
Monitoring and Evaluation (M&E) of adaptation measures / projects	
NDC and processes related to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement	
Awareness raising on the impacts of climate change and climate change adaptation	
Vulnerability assessments and adaptation options for decision-making processes	

Research and meteorological data	
Gender and climate change	
Traditional knowledge relevant for climate change adaptation	

Considering capacity needs identified above, please identify the five (5) priorities that would allow your institution to effectively engage in the NAP design and implementation process, where 1 is that capacity/skill with the highest priority.

Capacity and / or skill	Implementation level			Priority
	Policy	Organisational	Operational	

Please identify other priorities that would allow your institution to effectively design, implement and monitor climate change adaptation measures, actions, plans, where 1 is the capacity/skill with the highest priority.

Capacity and / or skill	Implementation level			Priority
	Policy	Organisational	Operational	