Annex 2 – Papua New Guinea National Adaptation Plan financing and investment strategy

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Abbreviations

ADB	Asian Development Bank
ATWC	Adaptation Technical Working Group
CCDA	Climate Change and Development Authority
CCMA	Climate Change (Management) Act
CFSC	Climate Finance Steering Committee
CLP	Climate Law and Policy
CPEIR	Climate Public Expenditure and Institutional Review
CRGGTF	Climate Resilience and Green Growth Trust Fund
DAC	Development Assistance Committee of the OECD
DIRD	Department of Implementation and Rural Development
DNPM	Department of National Planning and Monitoring
DOF	Department of Finance
DOT	Department of Treasury
DoW	Department of Works & Implementation
DPLGA	Department of Provincial and Local Government Affairs
EU	European Union
GCF	Green Climate Fund
GoPNG	Government of Papua New Guinea
IFMS	Integrated Financial Management System
MCA	multi-criteria analysis
MTDP	Medium Term Development Plan
M&E	monitoring and evaluation
NAP	National Adaptation Plan
NDF	Nordic Development Fund
NEC	National Executive Council
NEFC	National Economic and Fiscal Commission
NDC	Nationally Determined Contribution
OECD	Organisation for Economic Co-operation and Development
PCCC	Provincial Climate Change Committee
PEFA	Public Expenditure and Financial Accountability
PFD	Project Formulation Document
PFM	public financial management
PID	Project Identification Document
PIFS	Pacific Islands Forum Secretariat
PIP	Public Investment Program
PLLSMA	Provincial and Local-level Services Monitoring Authority
PNG	Papua New Guinea
PPP	public private partnership
SIP	Service Improvement Program
SOE	state-owned enterprise
TA	technical assistance
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development

Executive Summary

Climate change adaptation is a complex issue due to its cross-cutting nature that spans across sectors and requires a whole-of-government approach and close international and private sector cooperation. It involves a combination of (highly) technical (e.g., environmental, engineering), economic, financial, political, and cultural factors to be considered. At the same time, Papua New Guinea has a complex, highly ambitious cascading governmental planning framework comprising national, sector, agency, provincial, provincial, sectoral, district, local level government and ward-level plans. The strategy aims to inform the development of the National Adaptation Plan (NAP) financing and investment by providing a strategic approach to prioritising financial and non-financial resources across all areas. Interlinkages between the different stages of the budgeting and project cycle are considered to provide direction on how a practical, strategic NAP financing approach could look. This strategy provides guidance for implementing the NAP that is integrated, with practical tools to link planning, resource mobilisation, implementation progress tracking/monitoring, and reporting.

The enabling environments for adaptation, as well as public and private sectors more broadly, are critical to mobilising and effectively and efficiently using resources for adaptation. These enabling environments include (i) strong planning and coordination arrangements for adaptation; (ii) the public financial management system to resource and implement plans; (iii) frameworks for state-owned enterprises and public-private partnerships that can play important roles in service provision and in the mobilisation and use of public and private finance, and (iv) the business environment to direct private finance toward adaptation. All these enabling environments can contribute to adaptation in two ways: first, by a general strengthening of the frameworks, systems, and capacities to ensure resources are mobilised and used effectively and efficiently for established development objectives, which is done as part of sector-specific reform programs; and second, by mainstreaming adaptation considerations into these enabling environments to increase the impact on adaptation. Entry points in public financial management are the mainstreaming of budget, public investment and service improvement program processes, and the phased approach to tracking climate financing while scoping studies can help identify opportunities in other areas. As frameworks are mainstreamed, mitigation considerations should equally be reflected.

Financing for Papua New Guinea's NAP is taking place in a favourable environment framed by high-level political commitments globally and in Papua New Guinea. Although a recognised large financing gap for climate action (including for adaptation) remains in reaching politically agreed targets, ambitious corporate commitments of key development partners and increasing resources for international climate change funds, and the private sector are increasingly aware of the importance of climate resilience. Maximising resources for climate change adaptation measures under the NAP framework, therefore, requires a strategic approach. The limited available capacity and resources across the CCDA, central agencies, priority sectors and subnational government entities will need to be allocated to where the potential and likelihood for mobilising resources is highest. Where possible, utilising and strengthening existing channels, processes, and systems is preferable. While data on adaptation financing remains patchy and methodological inconsistencies persist (Climate Policy Initiative, 2021), available data from domestic and international sources helps inform and guide the strategic allocation of resources for mobilising adaptation financing. International public finance sources constitute a considerable financing source for adaptation, mainly through concessional loans and grants. Sources include bilateral providers, multilateral climate funds under the UNFCCC and outside of the UNFCCC, non-climate-focused multilateral funds, and multilateral development banks. Domestic public finance sources also constitute significant potential financing for the NAP. Earmarking specific revenue sources and expenditure programs for adaptation may provide additional domestic public financing. While data is limited on private sector financing for adaptation in Papua New

Guinea, funds from corporations, commercial financial institutions, philanthropy, and households and individuals have potential, particularly in the medium and long term.

The costing of adaptation options utilised in this strategy is intended to harness the established costing, budgeting and appraisal approaches from government and development partners. This aims to strengthen existing processes, avoid duplication, and reduce resource demands in terms of funding and capacity. To avoid the inefficient use of resources on costing, estimates made are encouraged to be stepwise as part of the project or activity design process and in parallel with the progress made on resource mobilisation. In parallel, the government's established costing and appraisal approaches should be strengthened as an ongoing process, alongside staff capacity development. Rather than adding planning layers at the national, sector, and subnational government levels, the NAP should be seen as a support and accountability mechanism for adaptation planning and implementation. NAP processes should be integrated as much as possible into existing governmental planning processes and documentation requirements, including through the mainstreaming of regular planning and budgeting processes and guidance. Economic appraisal approaches are faced with real-life complexities, data gaps, and resource limitations in terms of capacity and funding more broadly. While basic costing and appraisal approaches, guidance, and templates exist for government financing sources, their use is limited in Papua New Guinea and more comprehensive approaches are mostly supported by technical assistance. Climate funds, as well as bilateral and multilateral development partners, prescribe their own guidance and templates for the development of costings and project budgets, which are generally completed by staff from the organisation, with inputs from government staff as required. Papua New Guinea's context, therefore, supports a pragmatic approach to the costing and appraisal of adaptation measures, rather than developing an adaptation-specific costing methodology.

Given the evolving climate financing landscape and key characteristics of how financing decisions are taken (i.e., a mix of formal and informal approaches and varying time horizons), a suitable strategic approach for resource mobilisation for the NAP and its portfolio of adaptation measures needs to be long term. A long term, continuous, actively managed stakeholder engagement process using both formal and informal channels (rather than a standalone financing strategy document) will support this. To strengthen CCDA's role in climate finance coordination and as a support hub along with supporting resource mobilisation, a dedicated team of CCDA staff, supported by priority sector and central agency focal points and technical expertise provided by development partners, will gradually be established as part of the first phase of NAP implementation. Supporting this, a financing intelligence database (or toolkit) is being established to practically support the gathering of financing source information and allow formal and informal engagement to complement the database of adaptation measures (tracking of implementation of NAP activities). The tracking of climate change-related budget allocations and expenditure builds on global typology and a suitable tagging approach using a separate spreadsheet approach.

Finally, the NAP's phased approach provides for simple monitoring and reporting methodology and uses templates that bring together financial and implementation progress information. The first five years focus on the NAP and its growing portfolio of adaptation measures, before expanding to agency budgets in NAP priority sectors and beyond. The portfolio database of adaptation measures, and potentially a corresponding website dashboard, could facilitate ongoing monitoring and public reporting. As implementation performance and transparency are key in securing additional resources in the future, CCDA will help identify and resolve implementation issues, and comply with reporting requirements, whenever possible.

1. Introduction

The National Adaptation Plan (NAP) financing and investment strategy was developed to support the implementation of the NAP, under the third outcome of the Green Climate Fund (GCF) Readiness support grant project *Advancing Papua New Guinea's National Adaptation Plan* implemented by the Climate Change and Development Authority (CCDA), and United Nations Development Program (UNDP).

1.1 Background

The National Adaptation Plan (NAP) financing and investment strategy is based on initial assessment findings under USAID's Climate Ready Project (Climate Ready) assessment. This assessment provided the primary analysis and recommendations for tailored approaches to support NAP implementation in the areas of adaptation planning, costing, resource mobilisation, and tracking and reporting along with practical tools and supporting arrangements to lead the implementation of the NAP. The baseline assessment built on analytical work done in the areas of climate financing, legal and institutional arrangements for climate change, and public financial management, including:

(i) Options for Strengthening Climate Finance Coordination and Accessibility in Papua New Guinea prepared by the Pacific Islands Forum Secretariat for the Department of National Planning & Monitoring (DNPM) and the Climate Change and Development Authority (CCDA) in 2019;

(ii) The Joint Organisational Assessment Report of Papua New Guinea's Climate Change and Development Authority prepared by USAID Climate Ready in 2018;

(iii) The Analysis of Laws, Institutions, Policies and Plans, and Institutional Capacity Assessment prepared by CLP in 2021; and

(iv) Public Expenditure and Financial Accountability (PEFA) reports, with the most recent publicly available assessment from 2015 (2019/20 assessment remains unpublished to date). Consultations with CCDA; the Department of National Planning and Monitoring; the Departments of Agriculture and Livestock, Health, Transport, and Works and Implementation responsible for the four NAP priority sectors; and UNDP and CLP.

1.2 Context

Papua New Guinea has a complex governmental planning framework that includes numerous plans at the national, sector, agency, province, provincial sector, district, local level government and ward levels. Overarching guidance is provided by the national planning framework comprising the National Strategy for Responsible Sustainable Development for Papua New Guinea (StaRS), the Vision 2050, the Development Strategic Plan 2010-2030, and the Medium-Term Development Plan (MTDP) III. Agency-level plans include corporate plans and annual implementation (or activity) plans. At the sub-national level, the Organic Law on Provincial Governments and Local-level Governments prescribes provincial and local-level governments to formulate and implement rolling five-year development plans. Linkages between plans and budgets limit comparison between plans and budgets at all levels (e.g., program-activity structure in plans may not match with that in the budget). While at the same time national and subnational budgets, with budget development relying largely on line items, and incremental approaches, the monitoring and reporting are limited. Capacity gaps are widespread and inter-and intra-departmental coordination is often limited. Given climate change is a cross-cutting issue that requires contributions across the whole of government, these issues apply to the NAP and its adaptation measures at the sectoral and sub-national levels.

Climate change adaptation is a complex issue due to its cross-cutting nature that spans across sectors and requires a whole-of-government approach and close international and private sector cooperation. It further requires a combination of (highly) technical (e.g., environmental, engineering), economic, financial, political, and cultural factors to be considered. This is faced with:

(i) the complex public institutional landscape in Papua New Guinea comprises multiple, evolving government levels and a high number of government institutions that tend to increase over time;

(ii) a high-cost operating environment in Papua New Guinea, and;

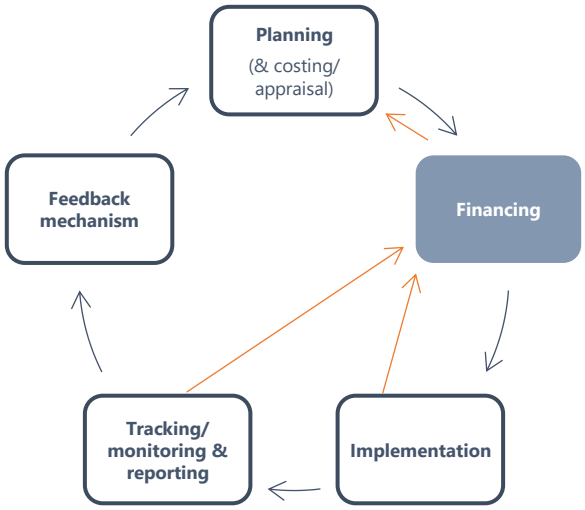
(iii) limited financial and human resources.

Given its multi-sectoral nature requiring collective action across, and financing from, public and private sectors, enabling environments are important to help identify and coordinate priorities and interventions, and facilitate the mobilisation and efficient implementation of resources.

2. Approach

In the context of Papua New Guinea's substantial needs, its high-cost environment, system and capacity constraints, and the multifaceted political economy that results in complex institutional arrangements and decision-making processes, the question of resourcing is even more critical. It is highly important to be strategic in the approach to prioritise financial and non-financial resources across all areas and focus on robust solutions, starting simple, and building on achievements to minimise capacity and resource needs while less critical features can be added once a basic level of functionality is established (more advanced practices can, of course, be continued). PIFS (2019, p. 50) also highlights the interlinkages, emphasising that efficient project implementation and the achievement of goals, meeting grant administration and reporting obligations, and the effective coordination of the national climate and disaster program all contribute to better access to climate finance, including through encouraging donors to invest resources.

Figure 1. Interlinkages between financing and other parts of adaptation implementation



This section briefly discusses the planning framework in Papua New Guinea and its implementation, prior to outlining a suitable approach for the NAP from a planning and public financing perspective. As alluded to above, designing a practical, robust adaptation planning approach that supports accountability through transparent progress tracking and reporting is critical to enabling successful resource mobilisation.

2.1 Integration and mainstreaming

The NAP is an overarching framework that aims to facilitate the systematic integration of climate change adaptation considerations throughout government, partner, and private sector operations. The NAP, therefore, functions as a support and accountability mechanism for the integration of adaptation considerations and subsequent implementation of identified adaptation measures. Mainstreaming should not replace existing plans and policies, processes, and mechanisms, or any supporting arrangements that are necessary to facilitate responding to the urgent and complex nature of climate change adaptation. In order to integrate and mainstream adaptation, firstly, the NAP will be integrated into the existing governmental planning processes and documentation requirements, including mainstreaming into existing planning documents over ongoing phases. As part of this process, planning and budgeting guidance and templates will need to be used to assist in mainstreaming adaptation. Guidance and templates will provide technical support for the integration of adaptation (and mitigation) into national, sub-national, sectoral and agency plans, as they are updated. This should cover the recurrent budget, as well as the public investment program and the service improvement program, along with subnational planning and budgeting.

As illustrated in the NAP document (see Figure 27 *Adaptation planning approach under the National Adaptation Plan*), the mainstreaming approach to Papua New Guinea's NAP integrates adaptation elements into ongoing, design-stage, and pipeline projects and activities, which are mapped by the NAP database of adaptation measures. The portfolio of appraised NAP measures is being tracked using an online database listing in a way that minimises resource demands and avoids duplicating established arrangements. At the same time, the tracking of adaptation activities provides an indication of how well the mainstreaming of adaptation is progressing. The alignment of plans and budgets will, in turn, facilitate the tracking of implementation performance and financing, overcoming missing links between planning and budgeting documentation that could otherwise hinder progress in tracking. Plans and budgets should therefore be aligned to facilitate tracking of financing and implementation performance. Reviewing planning and budgeting guidelines and templates at all levels ensures that main programs, projects and activities in plans and budgets align for climate change action.

Mainstreaming regular planning and budgeting processes and guidance should be pursued as soon as possible. The sectoral and subnational adaptation planning guidance, together with the provisions made by the Climate Change Management Act (2015) and Amendment (2022) regarding adaptation planning and related assessments[1], should be gradually integrated into regular planning and budgeting processes to streamline guidance and templates. Two options can be taken for this integration: a) either through full integration or b) through annexing to and cross-referencing the adaptation guidelines in the regular guidance. A list of existing planning and budgeting guidance and templates is below. Supplementary fit-for-purpose practices and tools from the Pacific region and elsewhere can also be adapted as needed.

[1] The Climate Change Management Act 2015 and its 2022 amendment provide for annual climate change adaptation plans to be prepared by organisations, bodies and individuals (Section 74), and for climate risk and resilience assessments of any newly planned infrastructure projects (Section 68A).

- General guidance on budgeting is provided in the Department of Treasury's *Budget Manual* from 2008 and the *Consolidated Budget Operating Rules* from 2017 (2015 version available online).
- For the recurrent budget, the annual budget circular and information sessions provide guidance and templates for the budgeting of new priorities in Stage 1 and ongoing activities in Stage 2 of the budget preparation process.
- For the capital budget's Public Investment Program (PIP), climate change adaptation (and mitigation) that can align the PIP process and templates with the adaptation guidance and the multi-criteria analysis (MCA) approach, could fast-track the mainstreaming of the PIP.
- For the capital budget's Service Improvement Program (SIP), the Department of Implementation and Rural Development issued *SIP Administrative Guidelines* (4A/2019) in 2019 to provide complementary financial instructions for the SIP.
- Annual Activity (or Implementation) Plan templates for agencies.

Government and development partners' institutional commitments to increase funding for climate change can provide a shared incentive for project implementation teams to be open to incorporating adaptation elements into their projects and activities. The inclusion of adaptation elements into ongoing and pipeline projects is a quick win, particularly where financing decisions for interventions are often made years in advance, whether through the government's PIP and subnational SIP or development partners. Financing in this way can be secured for new proposed measures in the short term, including climate change elements into projects that have secured or (pre-) committed funding, or are already ongoing or under development, which can provide an avenue to achieve progress in adaptation in the short run.

3. Costing and economic appraisal of adaptation measures

The adaptation appraisal tool included in Annex 1 of the NAP, assists with the appraisal and prioritisation of adaptation activities. Costing remains, within limits, a variable factor that can be adjusted through changes to scale and technical specifications for an intervention. Costing is amongst several factors that determine the selection of a particular measure and its design. Other factors can include the available financing, financing preferences of decision-makers (both within government and of partners), and technical feasibility, among others. Economic appraisal approaches are faced with real-life complexities, data gaps, and resource limitations in terms of capacity and funding more broadly. While basic costing and appraisal approaches, guidance, and templates exist for domestic government financing sources, their use is limited in Papua New Guinea, and more comprehensive approaches are mostly supported by technical assistance. The costing of adaptation options should therefore utilise the established costing, budgeting and appraisal approaches from the Government of Papua New Guinea and development partners. Making use of these assists to strengthen existing processes, avoids duplication, and reduces resource demands in terms of funding and capacity.

To avoid the inefficient use of resources on costing, estimates should be developed step-wise as part of the project or activity design process and in parallel with progress made on resource mobilisation.

Approach to costing following three steps:

	Step	Timeframe	Agencies
(i)	Initial costings at the idea stage to ballpark estimates covering investment and recurrent costs and rely on funding instrument-specific detailed costing and economic analysis requirements at the concept and detailed design stages.	Immediate	All government agencies
(ii)	Strengthen existing government costing, appraisal, and selection processes to ensure climate risks are considered, low value-for-money proposals are filtered out, and recurrent cost implications are factored into decision-making.	As soon as revision of guidance is feasible	CCDA, DNPM (PIP & development funding), DOT (recurrent budget), DIRD/DOF (SIPs), DPLGA (subnational)
(iii)	Developing national and subnational agencies' capacity to use established costing, appraisal, and selection processes for regular activities and adaptation.	Ongoing	Central agencies, CCDA, partner programs

Ideally, detailed assessments of the costs and benefits of various interventions and different design options of each intervention would lead to the selection, specific design, and prioritisation of effective, value-for-money adaptation measures. In practice, however, real-life complexities, data gaps, and resource limitations in terms of capacity and funding more broadly, render such an approach unfeasible. Economic analysis tends to be done only at the detailed design stage for a specific intervention, rarely comparing different design options and more often modelling the costs and benefits of a single option after most intervention design features have been pre-determined. Costs are only one factor among several that influence decisions and design. Therefore, the available financing is a critical factor that often drives the scope and specific design of interventions, rather than the estimated costs of a proposed intervention. The way funding decisions are taken is also important, regularly involving informal decision-making processes, such as preferences or a specific development partner reflected in earmarked resource allocations. Lastly, technical feasibility influences the costs of an intervention. In this context, costs are a variable factor that can be adjusted based on a proposed intervention's approach, scope, and design features.

3.1.1 Government budget costings

Financing instruments, both government-based and climate funding and private sector finance, generally prescribe specific approaches, with templates and guidance for undertaking planning, appraisal and budgeting for adaptation investments. These stages from idea, concept and detailed design are outlined in the NAP's section on costing and appraisal of adaptation measures.

Costing and budgeting approaches, guidance, and templates exist for the Government of Papua New Guinea's finance sources. These assist in developing cost and budget breakdowns for an intervention from

the initial idea into a detailed design. The following guidance is available from central agencies for the different Government of Papua New Guinea financing sources:

- General guidance on budgeting and costing is provided in the Department of Treasury's *Budget Manual* from 2008. Section 10 focuses on costings. The *Consolidated Budget Operating Rules* from 2017 (2015 version available online) outlines guidance for preparing a Budget Business Case following approval of an initial concept for a new project.
- For the recurrent budget, the annual budget circular and information sessions provide guidance and templates for the budgeting of new priorities in Stage 1 and ongoing activities in Stage 2 of the budget preparation process, using the economic classification breakdown of the Chart of Accounts (3-digit level: 211 Salaries & Allowances, 212 Wages, etc.).
- For the capital budget's PIP, the Department of National Planning and Monitoring's *PIP Guidelines* from 2007 include templates for the Project Identification Document (PID) and the Project Formulation Document (PFD), both with a high-level cost table. The guidelines are currently being updated and will include more detailed costing requirements.
- For the capital budget's SIP, the Department of Implementation and Rural Development's *SIP Administrative Guidelines* (4A/2019) include templates for the PID (without costing information) and the PFD (with high-level cost breakdown).

The following list shows examples of costing and economic analysis approaches undertaken in Papua New Guinea.

- Aggregate ballpark cost estimates are common in Papua New Guinea and are found, e.g., in the MTDP III, the Enhanced NDC, and the GCF Country Program.

- Basic cost estimates of activities and projects are done as part of the recurrent and capital budget (PIP and SIP) preparation processes using the guidance and templates listed above. Subnational governments also prepare annual budgets.

- Costing of plans is less systematic, with the National Health Plan, 2010-2020 (Chapter 7) and the National Education Plan, 2020-2029 (Section 6) providing examples of plans with aggregate cost breakdowns. The Medium-Term Transport Plan 2 (2019-2022) also includes high-level estimates and is complemented by a sector funding study funded by the Australian Government.

- A sophisticated costing exercise has been done by the NEFC in the past as part of its Cost of Services Study, prepared with development partner-funded technical assistance. Similarly, the Department of Health's Free Primary Health Care and Subsidised Specialist Services Policy costings have been supported by technical assistance.

- Economic analysis is at times conducted in selected government departments, e.g., for revenue-generating projects in the agriculture sector or for road transport projects.

- The use of more comprehensive approaches to costing methodologies and economic analysis in Papua New Guinea is mostly supported by technical assistance. Several development partners prepare and publish detailed costings as well as economic and financial analyses for their projects in Papua New Guinea, following their own prescribed requirements and templates. An example is

the detailed economic analysis for the Building Resilience to Climate Change in Papua New Guinea project prepared by ADB. The World Bank's Project Appraisal Document summarises project costings and economic and financial analysis in the main text, with detailed breakdowns and analysis provided in annexes.

3.1.2 Climate Fund Costings

Climate funds, as well as bilateral and multilateral development partners, prescribe their own guidance and templates for the development of costings and project budgets. Climate funds as well as bilateral and multilateral development partners also produce guidance and templates for the development of costings and project budgets. Selected examples are listed below, with further information available online on respective development partner websites.

- GCF provides detailed guides and templates, including Concept Notes, Funding Proposals, and Detailed Budget Plans. For smaller projects following the simplified approval process, Concept Note, Funding Proposal, and Budget templates are also available, together with an extended list of supporting documents, including for economic and financial analysis. The Project Development Manual for Papua New Guinea provides a comprehensive overview and references.
- ADB does not publish templates, but high-level guidance on cost estimates, financial analysis, and economic analysis of projects as part of an Operations Manual, a Technical Guidance Note: Cost Estimation in Sovereign Operations, and Examples of Good Practice: Cost Estimates and Financing Plans.
- USAID publishes detailed budgeting templates and guidance for its projects, including a Budget Template, a sample Detailed Budget, and Budget Instructions and Cost Principles.

3.2 NAP approach to costing

The systematic economic analysis of adaptation measures will require the investment of substantial resources. Detailed costings and some form of economic analysis is often done at the design stage once funding has been (pre-)committed, and supported by feasibility studies. Quality and comparability are likely to be constrained by data availability and capacity, and the fact that funding decisions are also influenced by many factors. There is a gap in initial total financing for the NAP to help communicate the urgency and magnitude of financing needs. This is echoed in the high-level awareness of existing financing gaps globally and in Papua New Guinea, including from the Enhanced NDC. Regular reporting of the aggregate financing gap can be done, e.g., as part of the CCDA website dashboard and reports as financing data is built up through the gradual development of adaptation measures and their inclusion in the proposed adaptation database. Costings may not always be consistent across measures and sectors; however, inconsistencies would remain even when using the same costing methodology, as information availability and assumptions vary across measures and sectors.

Approaches utilised for the NAP are:

(1) No upfront, one-off costing exercise as applicable, which is otherwise often done for a plan, since the NAP is an umbrella framework under which adaptation interventions are being developed gradually (e.g., as plans are being mainstreamed);

(2) the development of a separate NAP costing methodology should be avoided in an effort to strengthen existing (financing source-specific) processes, avoid duplication, and reduce resource demands in terms of funding and capacity; and

(3) costing exercises should be kept simple and done step-wise, as part of the project/activity design process and in parallel with progress made on resource mobilisation to avoid inefficient use of resources for costing. These approaches are referenced in the NAP and integrated into the sectoral and provincial adaptation guidelines.

The costing process should follow the project or activity development stages. Only direct costs of a measure, e.g., for the investment and operations of a project or the development and implementation of policies and regulations, should be considered (if financing source-specific requirements do not stipulate otherwise). While at the idea stage, generally only a broad idea for an adaptation intervention exists. To develop the idea and initiate fundraising efforts, the Adaptation Options Factsheet of the sectoral adaptation guidelines can be used and help with an initial appraisal. The factsheet includes initial ballpark estimates covering investment and recurrent operations and maintenance costs, which provide a high-level orientation on the likely cost of an adaptation option.[2] Initial ballpark estimates can be developed into high-level cost estimates, in close consultation with the focal point of the identified financing source to reflect requirements and preferences in the intervention design. This can be done, for example, by breaking down the initial ballpark cost estimate by main activity and/or cost category, using a simple table, or the financing instrument-specific template. While a single estimate each for capital and recurrent costs often suffices at this stage, a high-level breakdown by main activities, inputs, or cost categories can make a cost estimate more dependable as well as support technical discussions and resource mobilisation engagement, while generally not requiring a substantial investment.

Upon approval or endorsement of the concept note (or similar document), the detailed cost estimates can be developed, again following the prescribed requirements and templates of the secured financing source(s). In the case of development partner financing, staff will often lead the compilation of cost estimates and also prepare an economic cost-benefit and/or financial analysis as required. In these cases, no additional costing or economic analysis is needed. If additional information on costs (and benefits) is available for a proposed adaptation measure, e.g., from (initial or pre-) feasibility studies or other assessments or similar projects implemented in recent years, this information should be used to substantiate the costing assumptions. At the same time, the Government of Papua New Guinea provides direction in the form of guidelines for its two large capital investment programs, the Public Investment Program (PIP) and the Service Improvement Program (SIP), as well as through the annual budget preparation process. For example, the SIP Administrative Guidelines include a breakdown into the major cost categories 'manpower', 'equipment', 'materials', and 'capital works' as part of the Project Formulation Document template. Development partners also generally prescribe a concept note template, which contains cost or budget information in a specific format and is often completed directly by or in close collaboration with the staff of the particular organisation.

[2] Investment costs are usually one-off costs at the beginning of an intervention, e.g., for the purchase or construction of buildings, equipment, and machinery, and/or technical expertise to design and implement a project or policy measure. Recurrent costs are ongoing and necessary to finance the operation of an intervention and can comprise, e.g., wages and salaries, utilities, consumables, and maintenance.

Simple cost or budget tables can be used where financing source approaches are absent or insufficient. In rare cases, financing from development partners, the private sector, or other (unconventional) sources does not come with adequate costing requirements. In such cases, government costing and appraisal processes can be applied to help filter out low value-for-money proposals or help re-design or more accurately cost them, increasing value-for-money for the government. Simple cost breakdown tables can also be used, such as the one shown in Table 1 for the concept stage (or for small interventions at the detailed design stage). The table can also be completed for each main activity to arrive at more detailed cost estimates at an intervention's detailed design stage. It can be developed using a bottom-up costing approach that combines unit costs with quantities of the different input factors needed for an activity to arrive at the annual and aggregate total cost. In the case of training, inputs could comprise, e.g., rental of a training venue, travel and per diem for participants, training and hiring of trainers, research and development, and consulting services, for instance.

Table 1. Basic summary table with cost estimate breakdown

Cost category (select/add applicable ones)	**Cost**					**Type of funding**	
	Year 1	**Year 2**	**Year 3**	**…**	**Total**	**Cash**	**In-kind**
Development costs (up-front)	**…**	**…**	**…**	**…**	**…**	**…**	**…**
Personnel	…	…	…	…	…	…	…
Consultants	…	…	…	…	…	…	…
Travel	…	…	…	…	…	…	…
Training/workshop	…	…	…	…	…	…	…
Professional services	…	…	…	…	…	…	…
Materials, goods & supplies	…	…	…	…	…	…	…
Equipment	…	…	…	…	…	…	…
Capital works	…	…	…	…	…	…	…
Other	…	…	…	…	…	…	…
Recurrent costs (annual)	**…**	**…**	**…**	**…**	**…**	**…**	**…**
Personnel	…	…	…	…	…	…	…
Goods and services	…	…	…	…	…	…	…
Utilities and rentals	…	…	…	…	…	…	…
Maintenance	…	…	…	…	…	…	…
Other	…	…	…	…	…	…	…

Table 2. Basic table for the bottom-up costing of activities

Activity (e.g., training)	**Unit cost**	**Quantity** (units, days, months, participants, etc.)					**Total**
		Year 1	Year 2	Year 3	…	Total	
…	…	…	…	…	…	…	…
…	…	…	…	…	…	…	…
Sub total	…	…	…	…	…	…	…

Table 3. Example of cost categories for an infrastructure project

Category	Description (examples)
Civil works	· Earth moving, excavation, cut and fill, grouting etc. · Concrete work including rebar and formwork (e.g., foundations, building components, tanks, and bridge components) · Metal fabrication (building framework, tanks, and other metal structures, etc.) · Building construction on roads, embankments, pipelines, etc. · Landscaping, planting, fences, etc. · Plumbing, electrical wiring, and other utility services · Other construction services · Cost of special purpose construction equipment (e.g., earthmovers, cranes, arc welding equipment, and site dewatering pumps) if not already included in construction contracts
Materials	· Major purchases of materials that are procured separately from associated construction services (e.g., aggregate, rock, steel, cement, sand, wood, rebar, pipes, asphalt, seedling trees, grass seeds, and paving blocks)
Equipment, vehicles, furniture	· General-purpose vehicles (cars and trucks, etc.) · General-purpose tools (e.g., landscape and building maintenance equipment) · Office furniture and equipment (desks, cabinets, computers, copiers, and phones, etc.)
Capital goods	· Electrical equipment (e.g., motors, pumps, controllers, electrical panels, telecommunication antennae) · Mechanical equipment (e.g., overhead cranes, water and wastewater treatment process equipment, meters and other measuring devices, gates, refrigeration, heating and air conditioning) · Special-purpose vehicles for project operations (e.g., bulldozers and compacters used in a landfill operation, and warehouse vehicles) · Other larger machinery and equipment manufactured off-site
Research and development	· Scientific investigations (e.g., water quality modeling, bench test of a treatment process, archaeological investigation, and survey of flora and fauna) · Technical support services (e.g., agricultural extension and small business) · Demonstration projects (e.g., crop production, soil conservation, and water harvesting)
Consulting services	· Any costs relating to consultant services during implementation
Training and fellowships	· Technical training for project operations (e.g., training in water or wastewater treatment, and hydrological modeling for reservoir operations in a water project) · Training in project and enterprise management (finance and accounting, etc.) · Other training (e.g., participatory methods)
Land acquisition and resettlement	· Land purchase · Compensation for loss of assets and livelihood · Cost to resettle displaced persons (new housing, new land, retraining, moving costs, and costs to assist the host community, etc.) · Land acquisition and resettlement monitoring
Environmental protection	· Any costs of construction and procedures relating to environmental protection during project implementation
Taxes and duties	· Value added tax and other taxes and duties on works, equipment and goods, and services
Project management and others	· Project reporting, project audits · Project accounting and financial management · Funds for the purchase of initial inventories of materials and supplies and for the financing of startup activities for project administration and operation (no double-counting with other items) · Implementation of management software and methods (e.g., accounting software and project management procedures) · Assistance in developing new institutions · Any costs related to bid document preparation · Any other costs relating to project management

Source: Asian Development Bank. 2022. Cost Estimation in Sovereign Operations, Technical Guidance Note.

Established costing and appraisal approaches should be strengthened, using existing costing and appraisal guidance and templates to support activity and project implementation as well as ensure climate considerations are reflected. CCDA will gradually provide inputs to DNPM's ongoing update of the PIP Guidelines for submission of funding requests under the government's PIP budget to ensure costings and listing of benefits for proposed measures adequately consider climate change. Through integration, or referencing and attaching, relevant parts of the sectoral and provincial adaptation planning guidance (including the MCA approach's elements relating to costs and benefits) will link these to the NAP. The same will be undertaken during the mid-long phase of the NAP for the SIP guidelines and other existing costing/budgeting and appraisal guidance. Complementary capacity development support for staff in CCDA, priority sectors, and other departments and agencies will be important to further institutionalise established processes and any changes. Where available capacity and expertise are insufficient, additional technical assistance may also be sought at any project development stage to support costings and appraisal activities or to provide a "second opinion" on prepared cost breakdowns and analysis.

4. Financing climate change adaptation

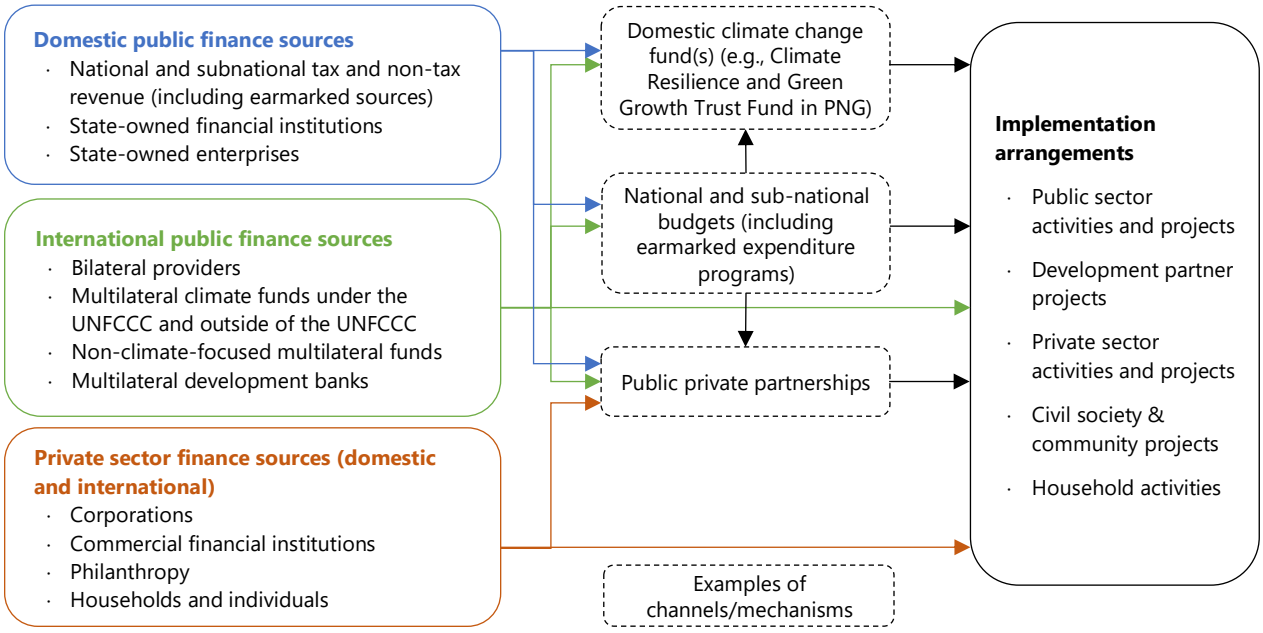
This section sets out the information, tools and processes that can increase access to financing for climate change adaptation. Providing an overview of the financing landscape in Papua New Guinea, this section includes financing sources available for interventions developed under the NAP framework as well as current climate financing trends globally and in Papua New Guinea. Subsequently, this section sets out a tailored resource mobilisation approach for the NAP in Papua New Guinea.

Understanding financing decision-making processes is at the core of successful fundraising for climate adaptation activities. A wide range of financing sources is available to fund NAP interventions. These comprises domestic and international public and private sector finance sources. Figure 2 provides an overview of domestic and international public and private sector finance sources.

Step in accessing climate finance	Timeframe	Responsibility or lead
Financing and investment strategy for the NAP as a long term, continuous, actively managed stakeholder engagement process that uses both formal and informal channels.	Immediate	CCDA, DNPM, DOT
Focus and strengthen CCDA's role as climate finance coordination and support hub with resource mobilisation expertise, including through the establishment of a partnerships and resource mobilisation team.	Immediate	CCDA, development partner support
Carefully assess and prioritise the pursuit of (new) financing sources and channels based on their potential return on investment to avoid spreading scarce capacity too thinly.	Gradual	CCDA, development partner support
(i) Establish a database of financing sources and related intelligence for adaptation. (ii) Establish understanding of programming and access processes, both domestically and internationally covering public and private sectors.	(i) Immediate, (ii) ongoing	CCDA

Establish and maintain formal and informal relationships with stakeholders through focal points in the various institutions.	Ongoing	CCDA
Actively support fundraising efforts for the evolving portfolio of appraised NAP measures.	Ongoing	CCDA, sectors, subnational entities

Figure 2. Overview of NAP financing sources, channels, and implementation arrangements



Source: USAID with inputs from NAP Global Network. 2017. Financing NAP Processes: Contributing to the achievement of NDC adaptation goals, Guidance Note; NAP Global Network. 2016. Snapshot: Domestic public finance for the implementation of NAPs; and Climate Policy Initiative. 2021. Global Landscape of Climate Finance 2021.

Financing sources are distinct from funding channels or mechanisms and implementation arrangements.[3] National climate funds and direct access to climate funds are examples that do not automatically increase resources for adaptation. A well-administered channel or mechanism can help redirect resources towards adaptation or unlock additional resources (e.g., by addressing financial management or political risks). However, establishing and maintaining it requires resources (financial and capacity) and it can also risk reducing or blocking resources for adaptation, which could reduce support for mainstreaming. The potential benefits, costs, and risks should be taken into consideration when considering establishing mechanisms and deciding on suitable implementation arrangements.

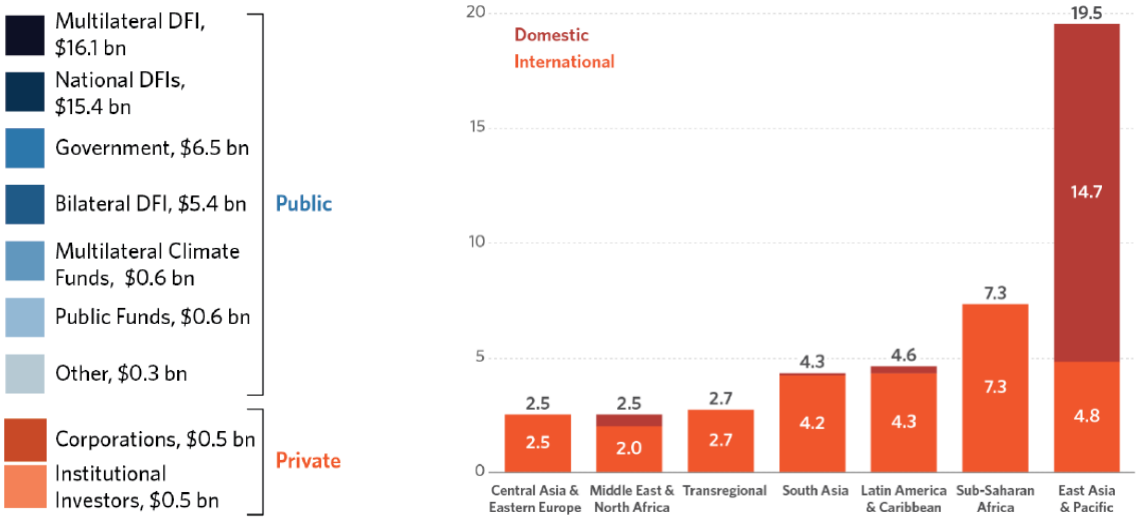
4.1.1 Global financing landscape

The climate finance landscape is continuously evolving. Data gaps and methodological issues continue to persist in climate finance data, and qualitative information on the impact of climate finance continues to be scarce and dispersed. Data is most comprehensive for international public sources of finance, while

[3] An example of a channel that is often confused with a financing source is a domestic climate change fund, through which government and development partner financing may be channelled.

UNEP's Adaptation Gap Report 2020 notes that there is not enough data to identify trends in domestic public or private finance flows. According to data collated by the Climate Policy Initiative, global climate finance flows reached US$ 632 billion in 2019-2020, with adaptation financing only accounting for US$ 46 billion. Almost all adaptation finance tracked for 2019-2020 globally was funded by public actors (Figure *3*) with the main sources of adaptation finance being government budgets and state-owned financial institutions and bilateral and multilateral development finance institutions. Adaptation finance accounted for 14 percent of all public finance flows in 2019-2020. Private finance does not play a significant role.

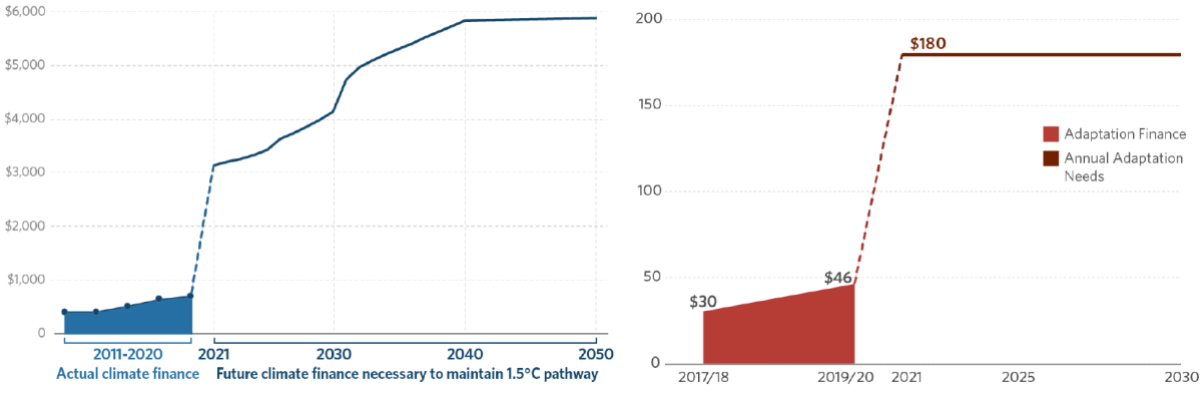
Figure 3. Adaptation finance according to actor (left) and region (right), 2019/20 annual average, US$ billions



Source: Climate Policy Initiative. 2021. Global Landscape of Climate Finance 2021.

Regionally, Sub-Saharan Africa received the greatest share (approximately 25per cent) of international adaptation finance. In East Asia and the Pacific, adaptation is primarily financed by domestic public finance sources (the high level is explained by domestic financing in China). However, adaptation finance falls well short of estimated annual needs over the next decade. The Adaptation Gap Report notes that there is insufficient evidence that the observed increases in global adaptation finance narrow the distance to meet the increasing adaptation costs. Projections by the Climate Policy Initiative show that annual adaptation finance would have to amount to US$180 billion per year over the next years to close the gap, which is substantially lower than for mitigation but still far above the current financing level (Figure 4).

Figure 4. Climate (left) and adaptation (right) finance and estimated future annual needs, US$ billions



Source: Climate Policy Initiative. 2021. Global Landscape of Climate Finance 2021.

Many major development partners have increased their climate finance commitments in recent years, including for adaptation. Such commitments increase internal organisational pressures to mainstream climate considerations into their operations, which in turn can help with mobilising resources for adaptation. Examples of commitments by development partners active in Papua New Guinea are listed below.

- The **Asian Development Bank** Strategy 2030 includes tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability as one of its operational priorities. Corporate climate targets comprise 75per cent of ADB's committed operations to support climate action by 2030, and $100bn (US$34 billion for adaptation) cumulatively from 2019–30 from ADB's own resources. This amounts to an annual average of US$8.3 billion, requiring a substantial increase compared to the annual average of US$5.6 billion over 2019-2021.

- **Australia** announced to increases its climate finance commitments to developing countries to US$1.5 billion for 2020-2025, of which US$500 million is earmarked for climate adaptation and resilience, disaster preparedness and renewable energy projects in the Pacific.

- **Japan** reaffirmed its commitment to provide climate finance from public and private sector sources equivalent to about USD 11.8 billion per year over 2021-2025, including increased assistance for adaptation.

- The **United States** announced annual public climate financing of US$11.4 billion, with USAID planning to draw from these funds to leverage private sector financing and public sector investments from partner country governments to mobilise a total of US$150 billion in public and private climate finance by 2030. This includes adaptation financing, including NAP country support, aiming to support the climate resilience of 500 million people, as per USAID's 2022-2030 Climate Strategy.

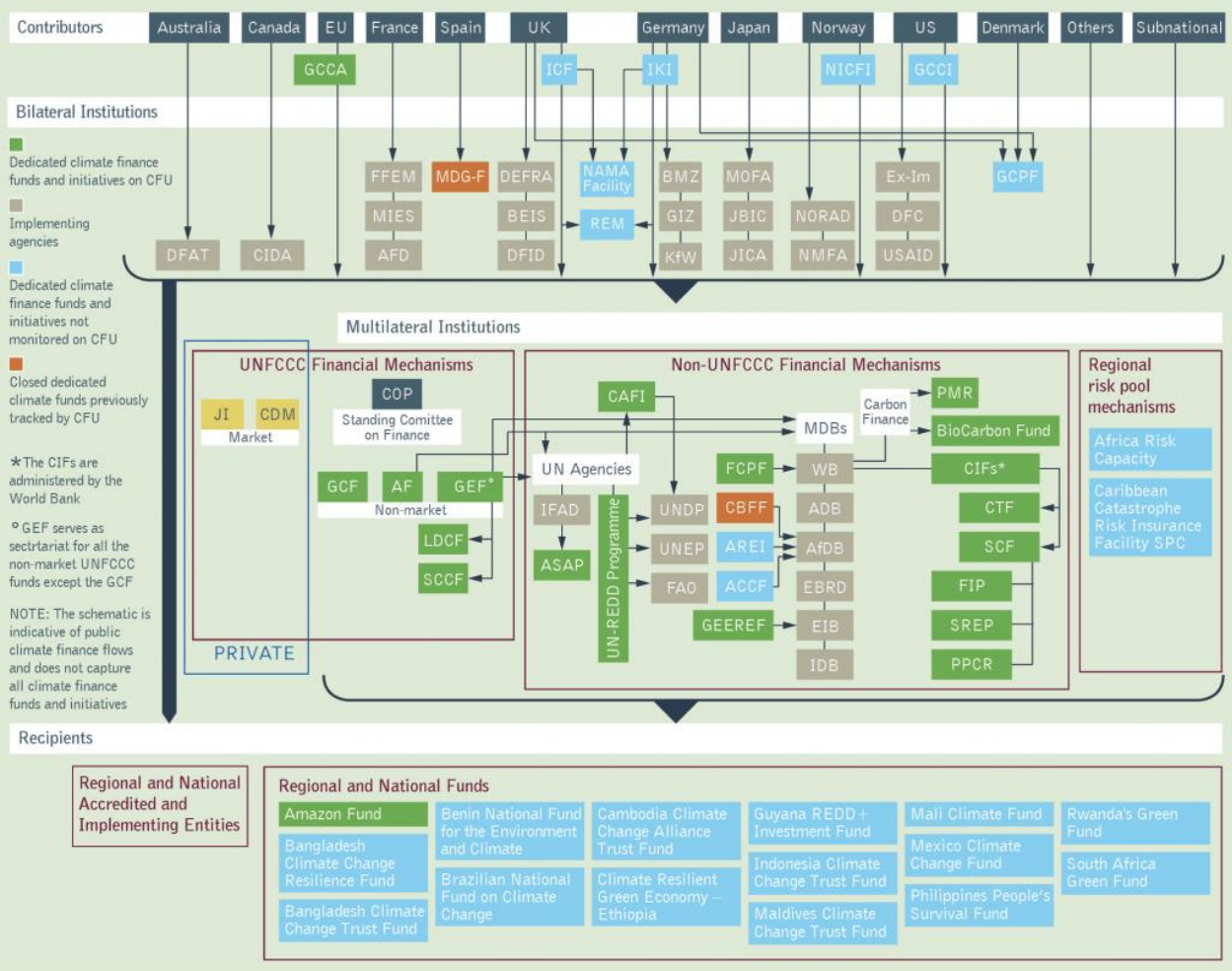
- The **World Bank** announced an ambitious target for 35 percent of its financing to have climate co-benefits, on average, over 2021-2025, replacing the earlier target of reaching 28 percent over 2016-2020. Half of this financing will support adaptation and resilience.

Adaptation finance commitments from international public finance sources have been increasing over the past decade. Noting data limitations discussed above that equally apply to Papua New Guinea, adaptation finance commitments have been increasing substantially in Papua New Guinea in recent years, reaching US$150-175 million per year in 2018-2019. These are largely funded through projects with significant (not principle) climate adaptation components. In comparison to other countries, Papua New Guinea's per capita climate adaptation finance commitments are above the expected level for its population size (smaller countries generally receive relatively higher per capita allocations). Most financing sources and implementing agencies are available, although some national and regional mechanisms, (e.g., African and Caribbean risk insurance facilities and regional and national funds listed in Figure 5), selected multilateral financing sources (e.g., African Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank), and specifically focused funds (e.g., the Least Developed Countries Fund earmarked for least developed countries only) do not provide access for Papua New Guinea. Where development partner contributions are used, these require generally (i) a history of sound financial management, which takes time to establish, and (ii) are often not additional but would have to come from

other sources, such as budget support provided to the country. Direct access only provides an adequate return on investment if it results in substantial additional resources for climate change. Successful project implementation[4] is in turn a critical precondition to attracting future funding, while any major issues risk-reducing climate financing.

Figure 5 provides an overview of the global climate finance architecture as of 2021, however, the climate finance landscape is continuously evolving and comprises additional climate finance funds and initiatives not included in the chart below.

Figure 5. Global climate finance architecture (2021)



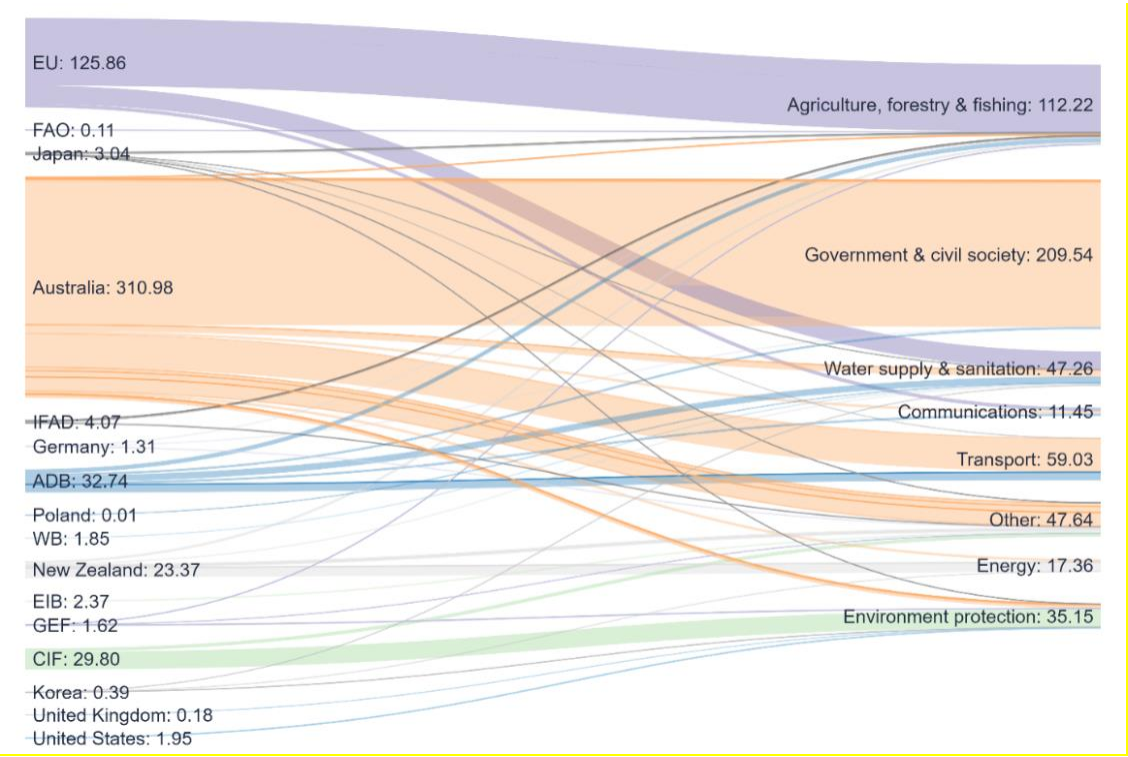
Source: Overseas Development Institute, 2021, The Global Climate Finance Architecture.

Based on available data from the OECD DAC database, important bilateral providers committing resources for adaptation in Papua New Guinea during the 2015-2019 period, were Australia, the European Union, and New Zealand. Multilateral development bank commitments were from ADB, the European Investment Bank (EIB), and a minor allocation from the World Bank. Vertical climate related funds include the Climate Investment Funds (CIF), the Global Environment Facility (GEF), and the International Fund for Agricultural

[4] Overheads should not be seen as additional or separate from an intervention, as these are needed to successfully implement a project, including for project support services that are provided at the organisational level.

Development (IFAD). Figure 6 shows recent adaptation finance commitments in Papua New Guinea by development partner and sector. Sectors benefitting mostly from adaptation commitments were the general government & civil society; agriculture, forestry & fishing; and to a lesser extent infrastructure sectors (transport, water and sanitation, energy) and environmental protection.

Figure 6. Adaptation financing in Papua New Guinea by partner and sector, total commitments, 2015-19 ($m)



Source: *Baseline Assessment Report for Papua New Guinea's NAP financing and investment strategy* calculations adapted from the OECD DAC Database.

Multiple development partners have been active across NAP priority sectors in Papua New Guinea (Table 4). The high-level mapping below further provides entry points to identify potential future development partners. General official development assistance in the sectors as well as other mitigation climate financing globally and in Papua New Guinea provide additional leads for potential finance sources.

Table 4. High-level mapping of donors in NAP priority sectors in PAPUA NEW GUINEA and globally, 2010-19

NAP sector	Adaptation commitments	
	Global	PAPUA NEW GUINEA
Agriculture	Top 10: WB ($4.75bn), IFAD ($2.1bn), ADB ($463m), GCF ($433m), AIIB ($250m), GEF ($204m), Howard G. Buffett Foundation ($201m), Adaptation Fund ($162m), Bill & Melinda Gates Foundation ($159m), CIF ($116m) Others: FAO, EIB, IKEA Foundation, EBRD, Dutch Postcode Lottery, NDF, McKnight Foundation, Margaret A. Cargill Foundation, Oak Foundation, Rockefeller Foundation, David & Lucile Packard Foundation, Swedish Postcode Lottery, People's Postcode Lottery, BBVA Microfinance Foundation, CIFF, Ford Foundation, Grameen Crédit Agricole Foundation, Gordon and Betty Moore Foundation, Welcome Trust, Charity Projects Ltd (Comic Relief), GGGI, William & Flora Hewlett Foundation, Norwegian Postcode Lottery, MasterCard Foundation	IFAD ($3.1m), ADB ($3.0m), GEF ($0.2m), FAO ($0.1m)

NAP sector	Adaptation commitments	
	Global	PAPUA NEW GUINEA
Infrastructure (communications only, other sectors covered below)	Top 10: WB ($180m), EU ($116m), ADB ($19m), Germany ($16m), Japan ($13m), United States ($9m), Sweden ($8m), Canada ($7m), Korea ($6m), Australia ($5m) Others: UK, Denmark, Belgium, Finland, Spain, Norway, Italy, France, Switzerland, IFAD	EU ($5.0m), Australia ($3.4m), ADB ($3.0m)
Transport	Top 10: Japan ($3.3bn), AIIB ($1.4bn), WB ($1.1bn), EU ($810m), Germany ($674m), ADB ($590m), UK ($417m), Australia ($211m), Korea ($200m), IFAD ($86m) Others: NDF, CIF, United States, Netherlands, New Zealand, GCF, Canada, Denmark, GEF, Oak Foundation, Belgium, EIB, Austria, David & Lucile Packard Foundation, Italy, Sweden, Spain, France, GGGI, Ireland, Switzerland, Lithuania	Australia ($47m), ADB ($25m), Japan ($0.2m)
Health	Top 10: EU ($582m), France ($264m), Japan ($253m), UK ($250m), United States ($161m), Canada ($145m), Spain ($118m), Australia ($63m), Germany ($58m), Ireland ($55m) Others: Netherlands, Sweden, Belgium, Switzerland, Korea, Denmark, Italy, Finland, Austria, Norway, Luxembourg, Greece, Iceland, Poland, Slovak Republic, Czech Republic, Slovenia	Australia ($0.1m)
Environment	Top 10: Germany ($5.8bn), EU ($3.0bn), UK ($2.3bn), France ($2.0bn), United States ($1.8bn), Japan ($1.6bn), GEF ($1.4bn), Sweden ($1.1bn), Norway ($668m), Denmark ($661) Others: Netherlands, GCF, Switzerland, WB, Australia, CIF, Spain, Italy, Canada, Belgium, ADB, Korea, Finland, NDF, Dutch Postcode Lottery, David & Lucile Packard Foundation, FAO, New Zealand, Ireland, Bloomberg Family Foundation, GGGI, Austria, Adaptation Fund, Swedish Postcode Lottery, EIB, People's Postcode Lottery, MAVA Foundation, Oak Foundation, Portugal, Poland, Greece, John D. & Catherine T. MacArthur Foundation, Slovenia, Luxembourg, William & Flora Hewlett Foundation, Czech Republic, Norwegian Postcode Lottery, Rockefeller Foundation, Hungary, Ford Foundation, Iceland, Lithuania, Slovak Republic, Latvia	CIF ($25m), Australia ($17m), GEF ($2m), United States ($2m) Others (<$1m): Korea, UK, Spain, France, Japan, New Zealand
Forestry	Top 10: CIF ($379m), GCF ($256m), WB ($140m), EIB ($112m), GEF ($93m), FAO ($15m), Gatsby Charitable Foundation ($15m), Adaptation Fund ($12m), ADB ($11m), Oak Foundation ($8m) Others: IFAD, NDF, David & Lucile Packard Foundation, Ford Foundation, GGGI, Swedish Postcode Lottery, BBVA Microfinance Foundation	FAO (0.1m)
Fisheries	Top 10: WB ($446m), IFAD ($191m), GEF ($40m), FAO ($38m), Bloomberg Family Foundation ($24m), NDF ($12m), CIF ($5m), Adaptation Fund ($4m), ADB ($3m), Bill & Melinda Gates Foundation ($2m) Others: David & Lucile Packard Foundation, Oak Foundation, Swedish Postcode Lottery, BBVA Microfinance Foundation, Gordon and Betty Moore Foundation, EIB	ADB ($3.0m)
Energy	Top 10: EU ($1.6bn), Germany ($1.2 bn), Canada ($613m), GCF ($590m), United Arab Emirates ($411m), WB ($315m), Italy ($266m), Sweden ($250m), UK ($197m), Finland ($173m) Others: Netherlands, France, Switzerland, New Zealand, Norway, Korea, United States, Denmark, AIIB, Australia, Japan, Oak Foundation, ADB, Belgium, GEF, Iceland, David & Lucile Packard Foundation, Dutch Postcode Lottery, Luxembourg, NDF, Austria, Spain, Ireland, Slovenia, GGGI, EIB, Adaptation Fund, Rockefeller Foundation, Poland, Lithuania, Portugal, Czech Republic, Swedish Postcode Lottery, William & Flora Hewlett Foundation, Slovak Republic, Greece, Hungary	New Zealand ($14.5m), Australia ($3.4m), Korea ($0.01m)

NAP sector	Adaptation commitments	
	Global	PAPUA NEW GUINEA
Water and sanitation	Top 10: Japan ($9.0bn), Germany ($6.6bn), France ($4.2bn), WB ($3.3bn), EU ($2.5bn), Netherlands ($1.4bn), ADB ($933m), Korea ($875m), GCF ($747m), Sweden ($635m) Others: Switzerland, United States, Australia, UK, Denmark, Spain, Belgium, GEF, CIF, United Arab Emirates, Finland, Adaptation Fund, Canada, EIB, Austria, Italy, New Zealand, NDF, Ireland, Iceland, Norway, Czech Republic, Luxembourg, IFAD, Portugal, Slovenia, H&M Foundation, Bill & Melinda Gates Foundation, Poland, Hungary, Margaret A. Cargill Foundation, FAO, Swedish Postcode Lottery, Dutch Postcode Lottery, Slovak Republic, Rockefeller Foundation, GGGI, AIIB, Welcome Trust, David & Lucile Packard Foundation, Greece, Lithuania	EU ($26m), Australia ($13m), ADB ($9m), WB ($2m), New Zealand ($1.3m), Japan ($0.04m), Korea ($0.03m), Poland ($0.01m)
Disaster Management (including reconstruction & rehabilitation)	Top 10: WB ($5.0bn), Japan ($1.6bn), UK ($1.4bn), EU ($777m), Germany ($446m), Sweden ($444m), Canada ($313m), Australia ($303m), Belgium ($287m), GCF ($193m) Others: Norway, Switzerland, Netherlands, United States, CIF, Denmark, Italy, Spain, Ireland, New Zealand, Korea, Adaptation Fund, Dutch Postcode Lottery, GEF, EIB, NDF, Austria, Finland, France, FAO, Margaret A. Cargill Foundation, People's Postcode Lottery, Czech Republic, Poland, Iceland, Luxembourg, Slovenia, Portugal, Bill & Melinda Gates Foundation, Slovak Republic, Romania, Ford Foundation	Australia ($5.0m), New Zealand ($2.8m), Japan ($0.02m), Korea ($0.02m)

Note: NAP priority sectors in bold. Multilateral development bank sources that are not available to Papua New Guinea are excluded. Source: adapted from OECD DAC databases.

The government has specific funding channels for recurrent activities and capital projects, while major development partners generally support all types of interventions (Table 5).

Table 5. Broad mapping of selected financing sources by types of interventions

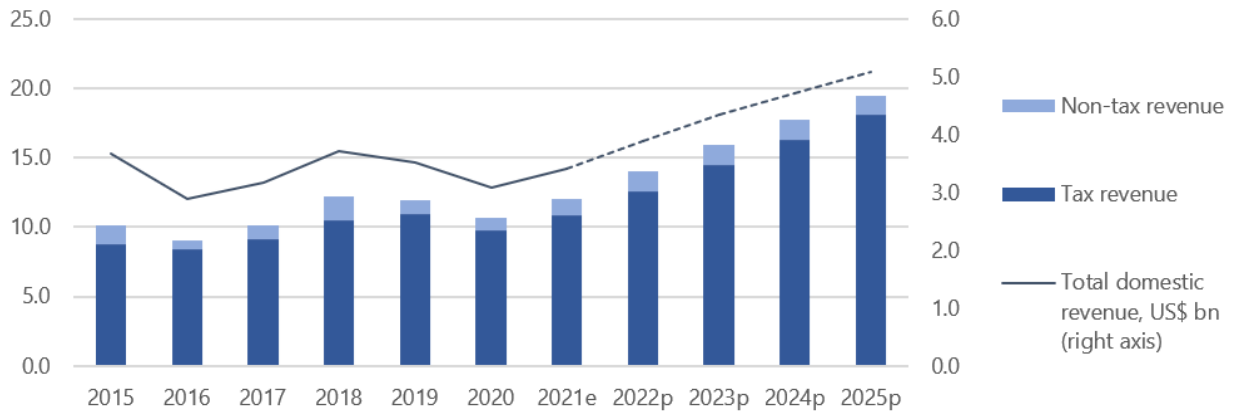
Financing source	Type of adaptation intervention			
	Research and feasibility studies	Policy development	Capacity building	Infrastructure investment
Domestic public finance				
Recurrent budget				
PIP				
SIP				
International public finance (examples)				
GCF				
ADB				
World Bank				
Australia				
EU				

4.1.2 Domestic financing landscape in Papua New Guinea

The Government of Papua New Guinea is committed to climate adaptation and has defined an initial financing target for infrastructure. High-level recognition of the importance of climate change action, including for adaptation, is highlighted in the United Nations Paris Agreement (Implementation) Act 2016 and the Enhanced NDC. The NAP along with other critical documents including the Enhanced NDC further include a financial target to build or rehabilitate transport, building and utility infrastructure and assets according to climate-resilient codes and standards in the amount of US$ 1.7 billion.

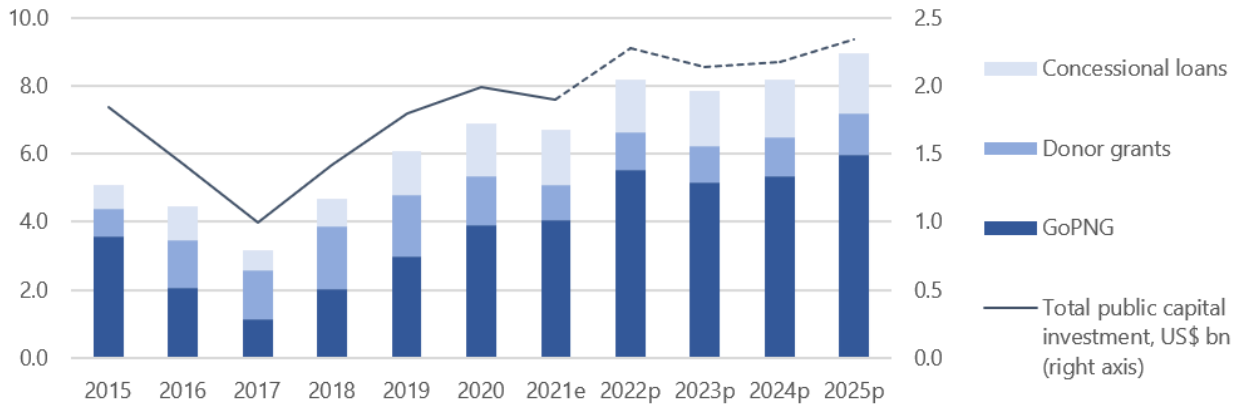
Domestic public finance sources constitute significant potential financing for the NAP. In 2019, prior to the COVID-19 crisis, annual national tax and non-tax revenue amounted to close to Kina 12 billion, equivalent to US$3.5 billion. Tax revenue accounted for an average of 90 percent of total national domestic revenue during 2015-2020. This is complemented by subnational revenue collected by provincial administrations, public bodies active at the subnational level (such as Provincial Health Authorities), and local-level governments. Budget projections foresee a (somewhat optimistic) steady increase in domestic revenue collections on the back of an economic recovery, increased public investment, and potential new liquefied natural gas and other resource projects, reaching almost Kina 20 billion by 2025, equivalent to over US$5 billion (Figure 7). Tax revenue is expected to continue to dominate domestic resource mobilisation with a share above 90 per cent. Supplemented by grants and deficit financing from domestic and international sources, this finances a substantial capital investment program. Public capital investment (including cash and in-kind development partner support) reached almost Kina 7 billion in 2020, equivalent to more than US$1.5 billion, and is expected to reach around Kina 8 billion (US$2 billion) annually over 2022-2025 (Figure 8). The recurrent budget reached almost Kina 14 billion (US$ 3.7 billion) in 2020 and is expected to stabilise at that level over the medium term. Together, this constitutes a substantial financing potential for both capital investments in adaptation (e.g., to climate-proof infrastructure) as well as recurrent activities (e.g., to develop and implement sectoral resilience policies).

Figure 7. National tax and non-tax revenue, 2015-2025, Kina billion and US$ billion



bn = billion, e = estimate, p = projection.
Source: Government of Papua New Guinea. Final Budget Outcome 2016-2020; Mid-Year Economic and Fiscal Outlook 2021; National Budget 2021.

Figure 8. Public capital investment program, 2015-2025, Kina billion and US$ billion



bn = billion, e = estimate, GoPNG = Government of Papua New Guinea, p = projection.
Source: Government of Papua New Guinea. Final Budget Outcome 2016-2020; Mid-Year Economic and Fiscal Outlook 2021; National Budget 2021.

Earmarked revenue sources can supplement adaptation financing, e.g., to fund operational activities of the CCDA and specific adaptation interventions. The Climate Change Management Act (Amendment) 2022 stipulates revenue sources to be levied by the CCDA. This comprises import levies on fertilisers, fuel, coal, and other goods contributing to greenhouse gas emissions. It includes climate levies on factories, installations, and other entities contributing to greenhouse gas emissions, and the transport of hazardous waste; deforestation levies on logging companies; and other fees and charges set in consultation with the Department of Finance. Publicly available data on international and domestic trade and economic activity is scarce, hindering the estimation of revenue potential for CCDA's sources. Several considerations suggest that revenue potential is moderate and could likely mainly allow for cost recovery, some operational funding, as well as minor gap filling for adaptation interventions. In view of this, careful weighing of costs and benefits of administering revenue sources with scarce capacities should be done. There are also potential downsides from the earmarking of taxes and non-tax revenue sources. This can include a perception of reduced mainstreaming importance, with the earmarked funds supposed to cater for addressing the issue. This is particularly problematic for a cross-cutting issue like climate adaptation.

Stakeholder consultations have expressed interest in exploring an earmarked function grant for climate action. Function grants are established under the Intergovernmental Relations (Functions and Funding) Act 2009 and cater for recurrent expenditure to deliver a set of minimum priority activities across main sectors (administration, education, health, primary production, transport infrastructure maintenance, village courts, land mediation, and local level government grants). While securing any funds for adaptation is positive, it would need to be clarified what the recurrent funding should be for (e.g., funding climate change committees at subnational levels, funding community resilience activities) and there would need to be a window of opportunity to make required legislative changes (e.g., an ongoing amendment of the functions and funding act). In view of this, mainstreaming subnational plans and budgets, partially funded through function grants and SIPs (see Sections 2 and 3 for a discussion of mainstreaming SIP guidelines), could be a more suitable approach to address the cross-cutting issue of climate adaptation. Mainstreaming tax credits for infrastructure development as well as rural development, primary production, and agricultural production extension services incentive schemes can also support financing the NAP activities.

The planned Climate Resilience and Green Growth Trust Fund (CRGGTF) is a prospective channel, although the establishment and maintenance of a trust fund are associated with costs in terms of financial resources

and capacity. At the same time, a well-administered trust fund can be a transparent pooling mechanism. Stakeholders will develop the final organisational and operational framework for the CRGGTF, including by determining the objectives, funding arrangements, institutional design, the establishment of small grant funding windows, and governance and accountability arrangements. To advance this work, the plan is to establish a Sub-Technical Working Committee to design the architecture of the CRGGTF, taking into consideration experiences from similar funds in the region, including the Mama Graun Trust Fund, Papua New Guinea Sustainable Development Program, Solomon Islands Arnavon Endowment Fund, Micronesia Climate Change Foundation and other such establishments. In the immediate timeframe, a trust account, could fulfil needs for now, allowing the pooling of resources and establishing a financial management track record with regular bank reconciliations and financial reporting and audit. As contributions increase in the medium or long-term, arrangements could be adapted to evolving needs.

Other avenues include sourcing from levies, fees, and charges, which must be coordinated with other revenue policies, including in the area of forestry and other natural resources. Fees generally have the primary objective of a regulatory function, with revenue collections targeting cost recovery. Potential trade-offs with development objectives limit the flexibility to set high-yielding rates, particularly in the short- to medium-term where limited substitution options exist for some levies. Many greenhouse gas emissions in Papua New Guinea stem from energy and from agriculture and forestry activities. However, Papua New Guinea faces high energy (including electricity) prices, and the agriculture sector is faced with competitiveness concerns, including due to high transport costs. A substantial levy would further increase input prices for agricultural and industrial production and the service industry, undermining nascent economic activity in non-resource sectors in Papua New Guinea. This would likely be particularly pronounced in the short- and medium-term where alternatives, such as cleaner electricity and transport services, are not yet available. A levy would make the investment in cleaner technologies more attractive, such structural changes of the economy often require longer time periods, during which business activity could be severely hampered if the transition is not managed carefully. High revenue potential could therefore likely only come from licenses or a tax (surcharge) that channels excessive profits away from the extractive (including forestry) or large polluting industries without undue harm to the domestic economy. Central government revenue sharing (e.g., of natural resource sector dividends) could be another option. Lastly, revenue potential estimates have to take into consideration the evolving public money management regularisation legislation, which prescribes a revenue remittance arrangement for collection fees and charges to the consolidated fund.

Green bonds involve a complex process of project selection and certification, and international bonds remain costly for Papua New Guinea in comparison to concessional financing sources. Other specialised instruments, such as debt-for-nature swaps as well as financing for ecosystem-based approaches, are complex as well but could have substantial potential in Papua New Guinea. A review of climate finance flows related to land-use, including for adaptation, prepared by a team in 2018 comprising CCDA, the Papua New Guinea Forest Authority, and UNDP provides a detailed analysis of finance sources and recommendations for reform in sectors affecting land use. This could be pursued as part of the fundraising activities for sectoral and subnational adaptation measures, such as the Oil Search Foundation working on health and community development. Regarding financing from SOEs, PPPs, and the private sector, putting in place and strengthening the relevant enabling frameworks is critical.

4.2 Resource mobilisation approach

This subsection brings together considerations on fundraising to inform a suitable resource mobilisation approach for the NAP. Simple tools and institutional arrangements to help implement the proposed approach are described and concrete examples provided for illustration.

Financing should be seen as an interlinked process that:

(i) Should move hand-in-hand with the planning and costing of strategies and specific activities, e.g., to ensure alignment with financing source priorities and avoid inefficient resource use on the planning and costing of unrealistic 'Wishlist'.

(ii) Is influenced by the implementation and accountability performance of ongoing and completed interventions, e.g., by increasing or reducing confidence of decision-makers in the Government of Papua New Guinea, partners, and the private sector to allocate further resources; and

(iii) Substantially depends on the enabling environment, including the public financial management system, capacity, and performance; the private sector business environment; and frameworks for SOEs and PPPs and their implementation.

The NAP Financing and Investment Strategy operates on the basis of a long term, continuous, actively managed stakeholder engagement process using both formal and informal channels. Larger financial commitments, e.g., by development partners, often evolve over multiple years and can involve preparatory analytical work that result in strategies and funding pipelines, which may make it harder to mobilise resources on a short timeframe. At the same time, newly tapped financing sources, windfall revenues, or changes in political priorities can result in unexpected emerging financing opportunities, which are difficult to anticipate, and do not necessarily align with formal financing strategies, or require pre-established relationships. Just as the NAP is designed as a flexible approach, as an umbrella framework under which adaptation measures can be developed, the resource mobilisation approach is flexible to accommodate different modes of financing and timelines. This does not mean, however, that climate finance mobilisation should be carried out on an ad hoc basis. Instead, resources will be used to design and begin implementation centered around continuous stakeholder engagement, for which several elements and simple tools will be in place that facilitate systematic fundraising:

1. Database of adaptation measures. This serves as a 'home' for identified adaptation measures under the NAP umbrella framework and helps link planning, financing, implementation, and monitoring and reporting processes.

2. Financing intelligence (database). This will serve as a 'home' for intelligence gathered on the different financing sources within Government of Papua New Guinea, of development partners, and from the private sector, covering both formal and informal knowledge. Such a database can support fundraising efforts and help preserve expertise during staff turnover (while being aware that a share of intelligence will be of intangible nature, such as relationships and informal information exchanges).

3. Partnerships & Resource Mobilisation Team. This team will pool the resource mobilisation expertise generate financing intelligence, build relationships, lead or support fundraising efforts, and can assist in maintaining and using the databases of adaptation measures and financing and donor intelligence.

In parallel with these steps for implementation, it will also be critical to strengthen and mainstream the enabling environment. This process is aimed at facilitating the increased availability of resources for adaptation as well as their effective value-for-money implementation. The enabling environment comprises:

(i) Adaptation planning and coordination arrangements, including of CCDA as a technical support hub next to its role in facilitating adaptation financing.

(ii) Public financial management systems and capacity.

(iii) Frameworks for the performance of SOEs that are operating in several NAP priority sectors; and

(iv) The private sector business environment.

Carefully assessing potential benefits, costs, and risks of financing sources, channels, and implementing arrangements, taking into account available systems and capacity, will be important to ensure the strategic allocation of scarce resources. These will need to be allocated where they have the biggest impact for maximising resources available for adaptation while also ensuring their effective and efficient use. Specialised development partner technical assistance can provide support to carry out assessments for current and potential sources, channels, or implementing arrangements, including the pursuit of innovative sources leading to a prioritised and sequenced approach to sources, channels, and implementation arrangements.

The phased approach to the NAP and financing allows the NAP implementation to remain iterative and flexible. For example, if the CRGGTF and/or direct access to global climate funds were unable to significantly increase resources in the short- and medium-term while requiring additional capacity and resources, pursuing these can be postponed to the medium-term. In that case, capacity and resources will be adjusted to invest in the short-term into (i) mainstreaming adaptation elements into agencies' PIP projects and pipelines as well as (ii) working with international accredited entities and organisations to access climate funds on behalf of Papua New Guinea, while taking a stronger oversight role in these. Consolidating and packaging smaller adaptation measure ideas or integrating them into a larger intervention idea (e.g., involving capital investments), can be a strategic approach to secure funding for some smaller adaptation measures.

4.2.1 Partnerships and resource mobilisation team

Developing partnerships and fundraising and technical expertise will support the ongoing, pipeline and new activities and projects, to enable successful adaptation resource mobilisation efforts. The establishment of partnerships and a resource mobilisation team within CCDA, with central agency and priority sector focal points and supported by development partner technical assistance will facilitate financing for adaptation measures to be implemented under the NAP priority and other sectors at national and subnational levels. This arrangement will, along with adequate financing of the CCDA, position the CCDA as an effective technical and financial support hub. Given overlaps between adaptation and mitigation financing, there could be synergies in defining the team's responsibility to cover both aspects. Recognising scarce resources and the capacity of CCDA and the government administration more widely, a pragmatic institutional approach is important. The institutional arrangements are set out in 6.1 of the NAP. Core functions of the team include:

a) Generate "donor" intelligence, including through organising and participating in training sessions or courses and knowledge exchanges with specific development partners and/or financing instrument officials;

b) Strengthen existing and establish new partnerships with potential funding sources within Government of Papua New Guinea (including DOT, DNPM, PPP and SOE bodies, SOEs themselves, and subnational actors), with development partners, and private sector contacts;

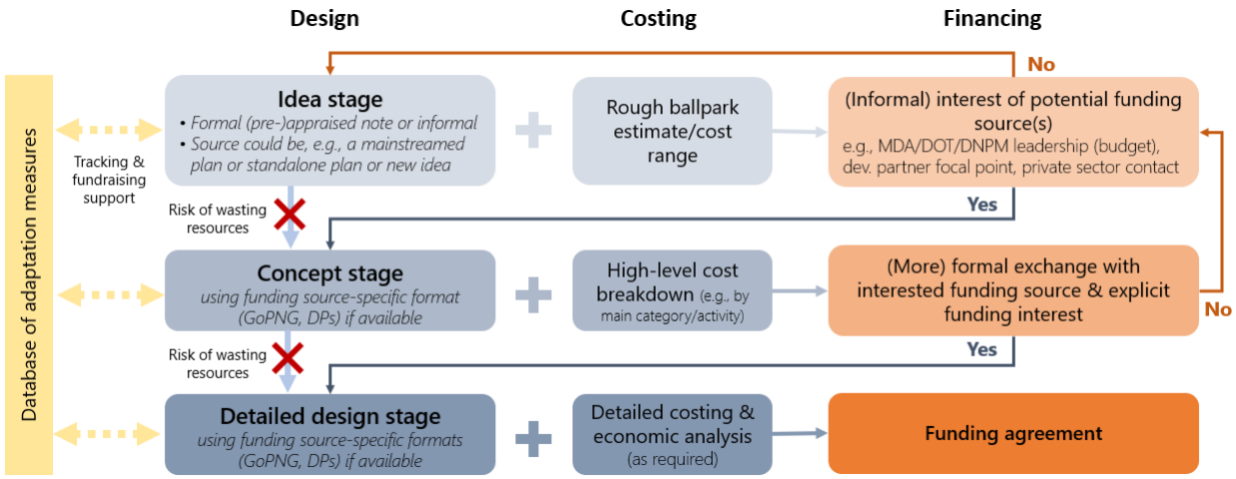
c) Maintain the portfolio of adaptation measures at various design stages (using the database mentioned above);

d) Facilitate the matching of measures with suitable funding sources; and

e) Track and report on implementation progress and financing (using the database of adaptation measures).

Relationship building with financing source representatives will be undertaken via establishing and maintaining formal and informal relationships with stakeholders through focal points in the various funding institutions. Regular briefings with political leaders, NEC submissions, ministerial briefings in priority sectors, involvement of technical officers in priority sectors, and formal and informal meetings with development partners and private sector representatives, among others, will consolidate these relationships overall. At the same time, relationship building with technical design and implementation teams is essential as the development of adaptation measures from idea to detailed design should evolve jointly with fundraising efforts, the latter should be initiated at the idea stage (Figure 9). For this, the Partnerships and Resource Mobilisation team will work closely with the implementing agency from the conception of a project idea, rather than only after a concept note has been developed. At times, the initiative to design a new adaptation measure may also come from climate financing intelligence, pointing to an available financing source or specific donor interest.

Figure 9. Synched approach for intervention design, costing and financing



Apart from strengthening the capacity of the partnership and resource mobilisation team, it will be important to build technical expertise for adaptation mainstreaming and intervention design support in CCDA and the priority sectors.

4.2.2 Financing intelligence—database

A financing intelligence database will provide a practical tool to gather financing sources of information and a record of formal and informal engagement. The database will comprise, among others, contact details of focal points, programming and access procedures, sector priorities, scope, or preferences for certain types of interventions, including modalities available and co-financing requirements or preferences; funding cycle timing; and a history of past and ongoing funding. The database can be gradually expanded based on intelligence gathered from fundraising efforts for specific adaptation measures. Knowledge of financing sources, together with relationships, informs the matching of intervention ideas with financing sources. Each funding source has characteristics that may or may not match well with a proposed adaptation measure. This matching process can help narrow down suitable funding sources and identify sources with the highest potential, for which formal and/or informal engagement can be initiated at the intervention idea stage. The next subsection provides examples of financing source characteristics and how such an identification and matching process can be designed.

While adaptation financing data limitations persist, some useful data sources exist to supplement locally available knowledge. Rich information sources with detailed data are the OECD DAC databases which are being used to initiate the finance intel database. The OECD DAC Creditor Reporting System (CRS) provides information on general official development assistance as well as on aid activities targeting global environmental objectives including climate adaptation. The latter includes detailed information by recipient, development partner, sectors and subsectors, and detailed information on the project title and description, among others. Other sources include the Overseas Development Institute's Climate Funds Update and the Climate Policy Initiative, among others. Detailed information on specific development partners and their different financing sources and modalities is available on their online presences.

4.2.3 Mobilising international public finance

Several criteria can be used to narrow down potential financing sources which include:

(i) Likely cost range of intervention (e.g., large investment needs will reduce the potential pool of partners);

(ii) Key development partners in the sector in Papua New Guinea and elsewhere; and

(iii) Support to similar interventions, both ongoing and completed and in Papua New Guinea or elsewhere.

These criteria can be complemented with knowledge from established partnerships as well as donor intelligence on any additional suitable sources gathered by the NAP Partnerships & Resource Mobilisation Team and its central agency and sectoral focal points. Such intelligence can, for example, come from an analysis of partners' priorities in Papua New Guinea found in country strategies (see also next example). Table 6 provides an overview of the applied criteria.

Table 6. Application of criteria to transport sector adaptation example for climate-resilient codes and standards

(i) Cost range	(ii) Key development partners			(iii) Similar interventions (examples)
	Papua New Guinea transport sector (disbursements, 2015-20)	Global adaptation commitments (2015-19)		
		Transport policy	Housing policy	
<$5m Most medium and larger-size development partners (MDBs, vertical funds, bilateral partners, etc.)	Australia: $252m ADB: $223m Japan: $138m WB: $89m EU: $10m Other partners: OPEC Fund, Climate Investment Funds, Korea, United States	GCF: $144m WB: $140m France: $80m EU (excl. EIB): $21m ADB: $16m IFAD: $10m Korea: $4m Germany: $3m	EU (excl. EIB): $250m WB: $219m ADB: $143m UK: $129m Australia: $83m Germany: $32m Nordic Development Fund (NDF): $26m	PAPUA NEW GUINEA: · ADB: Support to climate-resilient port standards · USAID: Support to DoW Climate Resilience Policy Region: · World Bank: Support to climate-resilient infrastructure standards in several Pacific countries · World Bank: Support to climate- & earthquake resilient National Building Code in Samoa Global: · NDF: Developing Climate Resilient Infrastructure Standards in Zambia (€4m)

Sources: OECD DAC databases for financial data, development partner websites.

**Based on financial data from the publicly available OECD DAC databases, largest partners active in Papua New Guinea's transport sector are Australia, ADB, Japan, the World Bank, and the European Union (the same analysis could be done for the housing sector or at subsector level). In terms of global adaptation financing commitments over the most recent five-year period for which data is available, the GCF, the World Bank, France, the EU, and the ADB are the largest partners in the area of transport policy, and the EU, the World Bank, ADB, the UK, and Australia in the area of housing policy (excluding financing sources to which Papua New Guinea does not have access to like the Interamerican Development Bank and the European Bank for Reconstruction and Development).*

Table 7. Basic information on ADB as an illustration for the financing intelligence database

Representation	HQ: Manila, Philippines, Pacific Department (PARD) Resident Mission: Papua New Guinea Resident Mission (PNRM)
Government focal point	Lead: Department of Treasury, Department of National Planning and Monitoring Supporting: Departments and agencies in sectors of ADB operation (executing and implementing agencies under ADB operations)
Overall strategy and climate targets	Strategy 2030 provides strategic guidance to ADB operations. Operational priority 7 is 'Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability' The strategy defines climate operations targets that were updated as follows: · 75per cent of ADB's committed operations to support climate action by 2030, and · $100bn (US$34 billion for adaptation) cumulatively from 2019–30 from ADB's own resources. This amounts to an annual average of US$8.3 billion, requiring a substantial increase compared to the annual average of US$5.6 billion over 2019-2021.
Country strategy and programming of resources	**Country Partnership Strategy** (CPS): ADB's CPS for Papua New Guinea identifies the broad strategic areas for engagement over a five-year period. The CPS is generally prepared by the ADB country team led by the Country Economist and includes stakeholder consultations with the government and development partners in the year prior to its release. Its current CPS was released in September 2020 under the theme 'Achieving Diversified, Sustained, and Inclusive Growth' and covers the period 2021–2025. Main focus of ADB investment over 2021–2025 is on essential infrastructure (>75per cent of financing) for transport and energy and smaller interventions in water and urban infrastructure; followed by public sector management (15-20per cent of financing); and smaller interventions, including in finance and social sectors. Building climate resilience is a priority area under the third strategic pathway ('Addressing inclusivity and building resilience') and addressing climate change is a cross-cutting theme that ADB aims to integrate throughout its operations in Papua New Guinea.

	Country Operations Business Plan (COBP): The CPS is translated into three-year COBPs on a rolling basis. The latest available COBP covers the period 2021–2023. The preparation includes a yearly country programming mission where priorities and the pipeline is discussed with the government. The programmed pipeline is generally followed, but new projects can be included if both government and ADB agree on support. The next CPS will be developed in 2024/25 to cover the period 2026–2030.
Important focal points	Relevant staff include the Country Director, Country Economist, the specialist responsible for climate change, and specialists responsible for NAP priority sectors. The CPS and the latest COBP contain staff lists. When engaging, follow protocol, recognise busy schedules, and consider suitability of formal vs. informal approaches.
Types of interventions supported	· Infrastructure investment · Research and feasibility studies · Policy development · Capacity building
Products and instruments	ADB has a wide range of financial products and modalities that are accessible to Papua New Guinea, both for the public sector and the private sector. Climate change as a cross-cutting theme in ADB's CPS for Papua New Guinea and its corporate climate operations targets provide an entry point to mainstream climate change adaptation into all of ADB's future operations in Papua New Guinea. Public sector products relevant for climate change adaptation: · Project investments: ADB's main form of sovereign operations is through project investments. · Technical assistance: Various technical assistance (TA) funds exist within ADB that provide support on a grant basis. The scope of TAs can be either regional or country-specific. TAs can also be attached to a project investment, supporting its design and implementation. Among TA funds, there is also a specialised Climate Change Fund. · Budget support: ADB's main budget support products comprise policy-based lending (PBL), policy-based guarantees (PBG), and results-based lending (RBL). This assistance is provided in the form of general budget support, i.e., funds are not earmarked for a specific purpose, but help finance the government's annual budget. While this type of financing can therefore not be directly used for climate change adaptation, the funding indirectly contributes to adaptation to the extent the national budget includes adaptation related activities. More importantly, however, the funding is linked to policy reform actions in one or multiple areas, which could be climate change related or include individual policy reforms with mainstreamed adaptation elements. These policy reforms are developed jointly between the government and ADB and receive high-level support from the political leadership. · Sector development program: These combine a project investment with a PBL. ADB also provides a range of private sector finance modalities and public–private partnership support. A full list of funds, and public and private sector products can be found on the respective website pages.
Co-financing requirements	Government co-financing is called counterpart financing and varies based on the product, sector, country, and other factors. It can comprise monetary and in-kind support, and is not for all products required.
Projects	Information on ADB's past, ongoing and planned engagement with Papua New Guinea is available online. The database shows the intervention title, the country coverage (e.g., regional projects and TAs cover other countries as well), sector, status (e.g., closed, active, approved, proposed) and approval data. Links to intervention-specific pages provide further details, including program documents called 'Report and Recommendation of the President' (RRP), procurement information, etc. Ongoing operations in Papua New Guinea (examples) · Sustainable Highlands Highway Investment Program · Highlands Region Road Improvement Investment Program · Transport Sector Preparatory Project

	· Preparing the Land and Maritime Transport Projects · Water Supply Scheme for Tete Settlement · Support for Water and Sanitation Sector Management (TA) · Health Services Sector Development Program · State-Owned Enterprises Reform Program · Supporting State-Owned Enterprise Reforms (TA) Private Sector Operations (examples) · Regional: ECOM COVID-19 Smallholder Farmer Climate Resilience and Livelihood Support Project · Regional: Olam COVID-19 Smallholder Farmer Livelihood Support Project Regional TAs (examples) · Support to Climate Resilient Investment Pathways in the Pacific · Pacific Private Sector Development Initiative, Phase IV · Regional: Supporting the Implementation of ADB's Climate Change Operational Framework 2017–2030 - Establishing Mechanisms to Measure, Monitor, and Report on Commitments made under the Paris Agreement

5. Tracking, monitoring, and evaluation of NAP implementation

A database and portfolio of adaptation measures will allow the NAP to evolve over time, as a "living" document and framework. The database provides a home for adaptation measures from existing plans, policies, and strategies; future mainstreamed plans; and measures not (yet) included in plans, e.g., resulting from feasibility studies or implemented outside the public sector (e.g., by the private sector, non-government organisations, or communities). The database incorporates appraisal, fundraising, implementation monitoring, and reporting aspects, thereby enabling the NAP to fulfil its mainstreaming, fundraising support and accountability functions effectively while minimising duplication with established processes and documents. The database also provides an increasingly comprehensive, real-time overview of adaptation activity in Papua New Guinea which grows with each additional activity implemented under the NAP throughout the NAP 2022-2030 period. [5]

The database aligns with the adaptation guidelines in the Adaptation Option Factsheet from the sectoral adaptation planning guidelines (including a score from the MCA approach), supplemented by fundraising and implementation progress information. Table 8 provides a simplified overview of the database and how this tracking feeds into the dashboard on CCDA's website providing transparency on NAP implementation progress. The database also facilitates complementary activities rather than duplication of adaptation programming between development partners, and agencies and government bodies. The database provides for a flexible process, referencing the sector and provincial adaptation planning guidance, on how to identify, document, and submit adaptation measures (as well as programmatic areas and strategies as needed) for consideration for inclusion into the database under the NAP framework. To avoid ending up with an unwieldy portfolio of adaptation measures, the database has been limited to a minimum criterion for (i) a preliminary MCA score, and (ii) funding probability for a proposed adaptation measure. At the same time, carrying out regular monitoring and reporting using the adaptation portfolio database, existing climate reports, and the website dashboard, will help identify and address any implementation issues.

[5] Potentially the database will gradually be merged with the Climate Change Project Profile Form included in Appendix 6 of PIFS (2019), as well as being inclusive of additional fundraising and implementation progress information (and any other relevant information).

Table 8. Simplified overview of the database of NAP adaptation measures

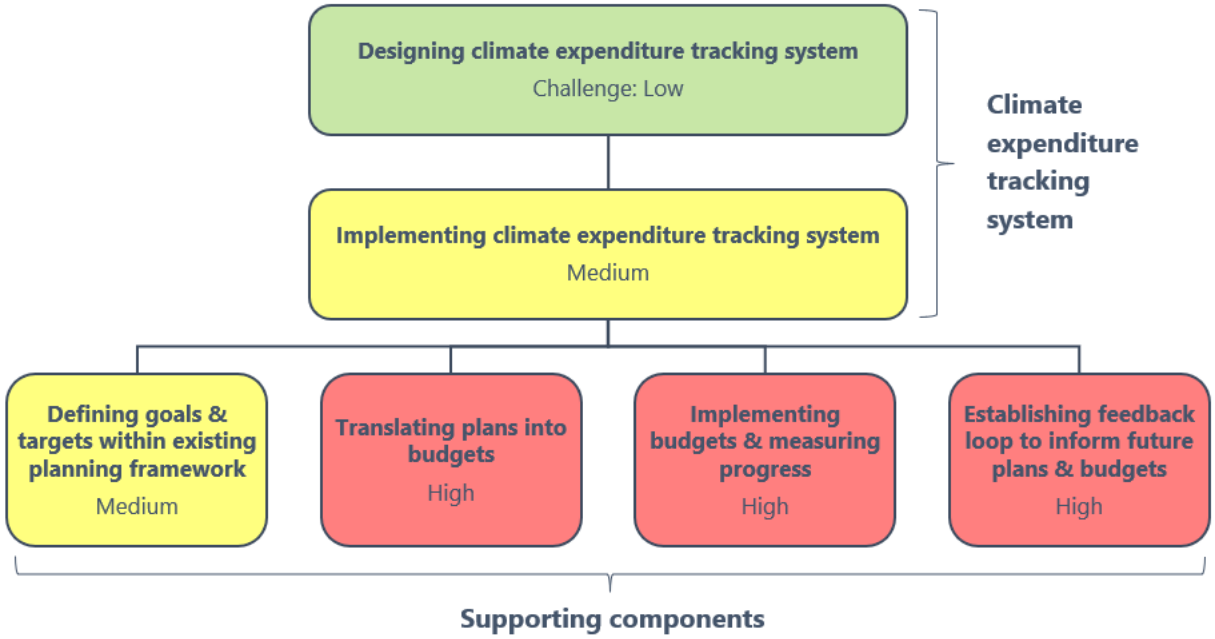
Programmatic adaptation area: _____

NAP Strategy	Title	Identifier	Stage	Sector	Location	Adaptation priority areas	MCA score	Benefits	Costs/budget	Funding sources	Implementation progress	Additional columns
		e.g., number from *Adaptation Option Factsheet*	Idea, concept, detailed design, implementation, completed		e.g., national, province, district							e.g., based on *Adaptation Option Factsheet* fields

Source: *Baseline Assessment Report for Papua New Guinea's NAP financing and investment strategy* with input from Sectoral Planning Guidelines for Climate Change Adaptation (2022).

This database will focus on climate budget and expenditure tracking to the adaptation measures developed under the NAP framework (e.g., through mainstreaming of sector plans) before expanding to agency budgets in priority sectors and beyond over the medium to long-term. Simple supporting tools, comprising the proposed database of adaptation measures (with financial and physical progress information fields), reporting formats, and a CCDA website dashboard, have been developed for the initial phases before the tracking system can gradually be incorporated into the budget and IFMS with gradual expansion over the medium and long-term. To be meaningful, a climate budget and expenditure system needs government support and a functioning system of core PFM elements. Four core elements should be in place: (1) defined objectives and targets, e.g. as part of the existing planning framework, with whole-of-government support (or of sectors covered if coverage is not comprehensive); (2) a strong link between plans and budgets, including strategic discussions about resource allocations as part of the budget preparation process; (3) credible budget implementation, with regular monitoring and reporting of financial and technical implementation progress; and (4) a feedback loop that ensures future plans and budget allocations are informed by findings from previous and ongoing years.

Figure 10. Assessment of climate expenditure tracking system components



5.1 Phased approach

A phased approach that gradually expands the coverage of adaptation finance tracking and reporting will progress monitoring and climate resource tracking over time. Capacity development and supplementation should be considered to institutionalise basic monitoring and reporting processes. Across phases, the system should bring together implementation progress information with financial data, integrated into the database of adaptation measures. Summary information, organised, e.g., by intervention stage, sector, and results, should be published as a regularly updated NAP implementation dashboard on the CCDA website and in existing or planned reports, such as CCDA's annual management report or the climate change annual review report envisioned in its Corporate Plan 2018-2022. Support to identify and address any implementation issues in collaboration with the responsible sector agency (e.g., by helping the sector agency to raise co-financing or other cash flow issues with central agencies) could be provided, if feasible, given the importance of implementation performance for successful future fundraising.

The following phases with each step dependent on the institutionalisation and ongoing compliance with the previous one break NAP implementation into three main phases of immediate/short term, medium term and long term, as well as some activities being ongoing. These include the tracking and monitoring and evaluation of the NAP as outlined in *The NAP Roadmap: initial implementation and monitoring framework* in Section 6.3 of the NAP.

- Short-term ("NAP focused"): Focus on tracking resources for individual adaptation measures contained in the NAP portfolio database. This should be combined with regular reporting and possibly a dashboard on CCDA's website that shows ongoing status of NAP implementation, including its financing status, using defined financing indicators under the NAP and established annual targets for adaptation financing.

- Medium-term ("targeted mainstreaming/tracking"): As mainstreaming work with agencies in NAP priority sectors progresses and adaptation measures are included in sector, corporate, and annual management plans as well as annual budgets, broaden the climate finance tracking system to the NAP priority sectors (phased or all priority sectors in parallel subject to available resources and capacity). At this stage, a basic system of budget tagging and tracking through the IFMS can be piloted (to replace the NAP database tracking approach in the future).

  To ensure resulting finance data yields meaningful information, this should be accompanied by reforms across the core PFM elements needed, including strong linkages to and between planning and budget preparation processes at the sector and agency level; in-year and annual monitoring and review processes covering implementation progress and financial data at the sector and agency level; and establishing of a feedback loop to inform future plans and budget allocations. All of these should use, to the extent feasible, existing processes at the sector and agency level (e.g., budget consultations and quarterly budget reviews).

- Long-term ("full mainstreaming/tracking"): Gradually expand tracking to all government agencies, as (meaningful) mainstreaming of plans and budgets progresses.

6. Enabling environment for adaptation financing

The enabling environments for adaptation as well as public and private sectors more broadly are critical to mobilising and effectively and efficiently utilising resources for adaptation. These include (i) strong planning and coordination arrangements for adaptation, (ii) the PFM system to resource and implement plans, (iii) frameworks for SOEs and PPPs that can play important roles in service provision and in the mobilisation and use of public and private finance, and (iv) the business environment to direct private finance toward adaptation. All these enabling environments can contribute to adaptation in two ways: first, by a general strengthening of the frameworks, systems, and capacities to ensure resources are mobilised and used effectively and efficiently for established development objectives, which is done as part of sector specific reform programs; and second, by mainstreaming adaptation considerations into these enabling environments to increase the impact on adaptation. As frameworks are mainstreamed, mitigation considerations should equally be reflected.

6.1 Public financial management

PFM is critical to ensure the effective, efficient, and accountable resourcing and implementation of plans. The government prioritises governance and strengthening PFM systems throughout its development plans as an enabler. Based on PEFA assessments, the government has been developing PFM reform plans and roadmaps to guide a number of major and multiple smaller reform initiatives. Major reform initiatives include (i) the roll-out of the IFMS across national departments and gradually across subnational governments and authorities; (ii) the revamping of the regulatory and institutional frameworks for public procurement; (iii) strengthening of payroll controls to reduce and ultimately eliminate overspending on personnel emoluments that risks crowding out priority spending in other areas; (iv) improving the national budget process and documentation to strengthen its use as a strategic policy tool; and (v) revenue policy and administration reforms to more sustainably fund the budget. These reforms are coordinated through the PFM Technical Working Group and supported by development partner assistance.

6.2 State owned enterprises and public private partnerships

SOEs play important roles in providing infrastructure and services in energy, water supply, telecommunications, ports, and air transport, among others. These sectors are highly exposed to climate change and disasters, with the NAP recognising infrastructure and transport as priority sectors. Weak performance of state-owned enterprises ties up capital for investments in service improvements and hinders adaptation to climate risks, aside from directly affecting service delivery outcomes for citizens and businesses in Papua New Guinea. Gaps in the regulatory framework, weak corporate governance, and poor financial performance have been concerns of the government and the enterprises themselves. Based on the NEC approved SOE reform blueprint from late 2019 and with support from ADB and other development partners, the government is currently undertaking a reform program to improve the regulatory framework through the recent amendment of the Kumul Consolidated Holdings Act, oversight, and performance of public enterprises.

The government aims to use PPP arrangements to maximise value and increase the quality and competitiveness of public services and infrastructure provision in Papua New Guinea. However, regulatory and institutional framework for PPPs is still emerging, with an amendment of the PPP Act under discussion, which needs to be followed by the issuance of regulations and the establishment of the PPP Center.

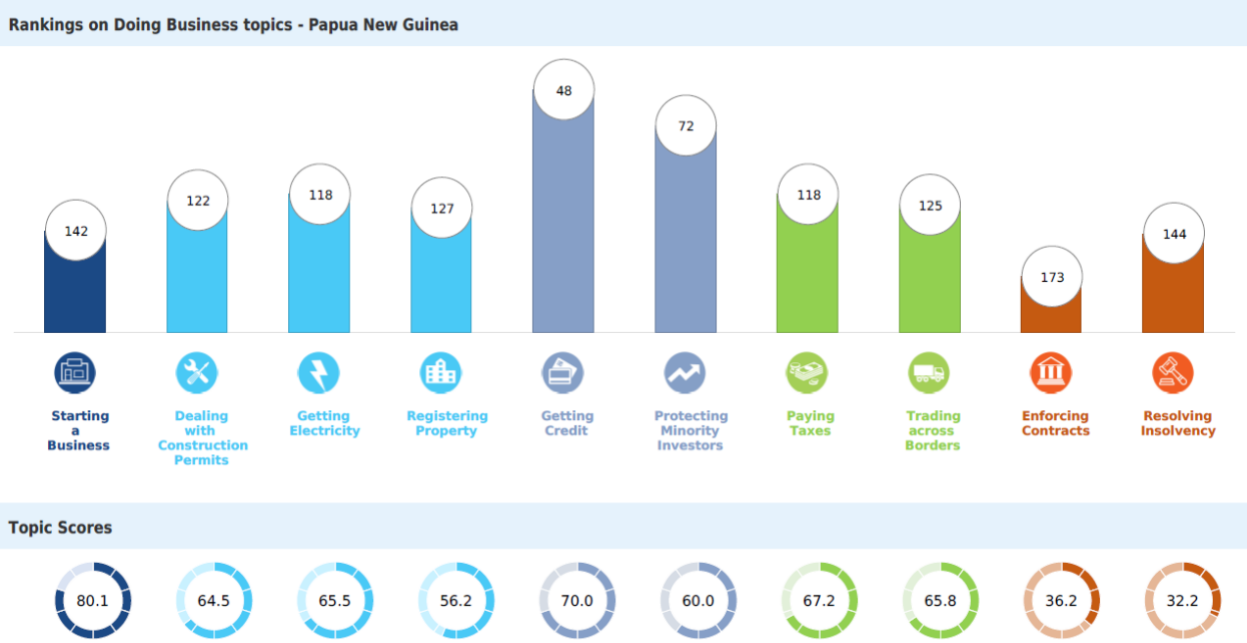
6.3 Capacity Development

Technical support for the gradual mainstreaming of adaptation (and mitigation) into plans is important to build up mainstreaming expertise in CCDA, priority sectors, and subnational governments. CCDA's position as a technical service centre and support hub to assist sectors and subnational governments in mainstreaming will complement capacity development. In the short-term, capacity supplementation by development partners will also partially form and support this role. An inventory of plans, policies, and strategies across the government's cascading planning framework for tracking their mainstreaming status and the next update cycle should be developed under the NAP implementation in the early (immediate implementation) phase. Engagement in the various planning processes and technical mainstreaming support will be phased and based on available capacity and resources, starting with the NAP priority sectors. As plans are mainstreamed, identified measures with meaningful contributions to adaptation can be added to the adaptation portfolio database to support fundraising, implementation progress tracking, and reporting.

6.3.1 Business environment

Mobilising private sector finance for adaptation will be critical to strengthen resilience of businesses and households as well as contribute to climate-resilient public goods and services. An example of mainstreaming regulations for the private sector is the provision for Climate Building Standards in Papua New Guinea's Climate Change Management (Amendment) Act 2021 (Section 68). The regulations to be developed under the provision will direct private financing toward building resilience of the housing sector (as well as contribute to mitigation). The business environment is aggravated by a high-cost environment driven in part by geographic and population characteristics. Though interpretation and reform planning and design has to be done carefully, the World Bank's Ease of Doing Business Index (prior to its discontinuation in 2021) provides a broad picture of performance and issues across a range of important business topics (Figure 11). Reforms to strengthen key business environment areas are ongoing in Papua New Guinea.

Figure 11. Ease of Doing Business ranking for Papua New Guinea, 2020



Note: Rankings are out of 190 countries assessed. Topic scores are between 0 (lowest) and 100 (highest).
Source: World Bank Group. 2020. Doing Business 2020, Economic Profile Papua New Guinea.

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Additional references are linked throughout the text