

Climate and Oceans Support Program in the Pacific – Phase 2

A sub-program of the Australia-Pacific Climate Change Action Program

Investment Design

Climate and Oceans Support Program in the Pacific – Phase 2 (COSPPac2)

List of Acronyms

AHP	Australian Humanitarian Partnership
APCCAP	Australia Pacific Climate Change Action Program
APPR	Annual Program Performance Report
AQC	Aid Quality Check
Bureau	Australian Bureau of Meteorology
CLiDE	Climate Data for the Environment
CLiDEsc	Climate Data for the Environment Services Client
CCU	Communication and Coordination Unit
CSIRO	Commonwealth Scientific and Industrial Research Organisation
COSPPac1	Climate and Oceans Support Program in the Pacific Phase 1
COSPPac2	Climate and Oceans Support Program in the Pacific Phase 2
CROP	Council of Regional Organisations in the Pacific
DFAT	(Australian) Department of Foreign Affairs and Trade
DoEE	(Australian) Department of Environment and Energy
DRR	Disaster Risk Reduction
ENSO	El Niño-Southern Oscillation
FRDP	Framework for Resilient Development in the Pacific
GA	Geoscience Australia
GCF	Green Climate Fund
GHG	Green House Gases
HPD	Humanitarian Partnership Division (DFAT)
IPMG	Implementation Partners Management Group
LSDs	Lands and Survey Departments
M&E	Monitoring and Evaluation
NDMOs	National Disaster Management Offices
NGO	Non-Government Organisation
NMS	National Meteorological Services
PACCSAP	Pacific-Australia Climate Change Science and Adaptation Planning Program
PASAP	Pacific Adaptation Strategy Assistance Program
PAF	Performance Assessment Framework
PCCSP	Pacific Climate Change Science Program
PICPP	Pacific Island Climate Prediction Project
PICs	Pacific Island Countries
PMC	Pacific Meteorological Council
PSLM	Pacific Sea Level Monitoring Project (term used under COSPPac1)
PSLGM	Pacific Sea Level and Geodetic Monitoring Project (term used under COSPPac2)
SC	Steering Committee
SCOPIIC	Seasonal Climate Outlook for Pacific Island Countries
SPREP	Secretariat of the Pacific Regional Environment Programme
SPC	The Pacific Community
SPSLCMP	South Pacific Sea Level and Climate Monitoring Project
UNFCCC	United Nations Framework Convention on Climate Change
USP	University of the South Pacific
WMO	World Meteorological Organisation

Definitions¹

Adaptation - An activity should be classified as adaptation related if it intends to reduce the vulnerability of human or natural systems to the impacts of climate change and climate-related risks, by maintaining or increasing adaptive capacity and resilience. This encompasses a range of activities from information and knowledge generation, to capacity development, planning and the implementation of climate change adaptation actions [Source: APCCAP Design Document]

Capacity - The ability of individuals, institutions and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner.

Capacity development - The process by which people, organisations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems and institutions.

Climate change - Any change in climate over time, including in climate variability and extremes, whether due to natural variability or as a result of human activity. This also includes changes in climate variability and extremes.

Climate change and disaster resilient development - Economic and social development and environmental management that accounts for the actual and potential consequences of natural hazards and of the adverse conditions caused by climate change, through disaster risk management, climate change adaptation and low carbon development.

Climate change governance - The integration of Climate Change and Disaster Risk Management into routine government and community level needs assessment, planning, budgeting, and monitoring and evaluation systems. [Source: APCCAP Design Document]

Climate change integration - Climate risks are assessed and managed, in an integrated manner, within social and economic development planning processes and practices. [Source: APCCAP Design Document]

Climate information - Climate information prepares users for the weather they will likely experience. Climate information includes high-quality data from national and international databases on temperature, rainfall, wind, soil moisture and ocean conditions, as well as maps, risk and vulnerability analyses, assessments, and long-term projections and scenarios. Climate information brokering refers to identifying opportunities to apply available climate data. Climate information tailoring refers to further adaptation of existing data to apply to specific scenarios.

Climate risk - A risk to the ongoing integrity and/or functionality of natural and/or human systems as a result of climate change.

Delivery Partners - The partners directly involved in the delivery of services to users - National Meteorological Services and Land and Service Departments. [Source: COSPPAC2 Design]

Disaster - A serious disruption of the functioning of a community or a society, involving widespread human, material, economic or environmental losses and impacts, and exceeding the ability of the affected community or society to cope, using its own resources.

Disaster management - The organisation and management of resources and responsibilities for dealing with all aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters.

Disaster risk - The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Disaster risk management - The systematic process of using policies, plans, organisations, and operational skills, capacities and actions to lessen the adverse impacts of hazards, as well as the possibility of a disaster.

Disaster risk reduction - A systematic approach to identifying, assessing and reducing the risk of a disaster.

Enabling environment - Policies, plans, knowledge, skills, financial resources and related capacities

¹ Unless otherwise indicated, these definitions are derived from the Framework for Resilient Development in the Pacific: An integrated approach to address climate change and disaster risk management 2017–2030

that stimulate, guide and support effective and efficient functioning of institutions and individuals.

Forced migration - A migratory movement in which an element of coercion exists, including threats to life and livelihood, whether arising from natural or man-made causes (e.g. movements of refugees and internally displaced persons, as well as people displaced by natural or environmental disasters, chemical or nuclear disasters, famine or development projects).

Hazard - A phenomenon, substance, human activity or condition that may cause one or more of the following: loss of life, injury or other consequences for humans; property damage; loss of livelihoods and services; social and economic disruption; environmental damage. Hazards may be slow or rapid onset. They may have natural or technological origins, with many being exacerbated by human activity.

Implementing Partners - The partners responsible for implementing COSPPac2 - the Pacific Community, Secretariat of the Pacific Regional Environment Programme, the Bureau of Meteorology and Geoscience Australia. [Source: COSPPac2 Design Document]

Mitigation - An activity should be classified as climate-change mitigation if it promotes efforts to reduce or limit greenhouse gas (GHG) emissions or to enhance GHG sequestration.

Private sector - Enterprises within the economies of Pacific Island countries and territories and across the Pacific region, at all levels such as household, community, micro, small and medium business, company and corporations, that are run for profit and are not government owned.

Resilience - The ability of a system, community or society exposed to hazards, and/or climate change, to resist, absorb, accommodate and recover from the consequences of a hazard event or of climate change in a timely and efficient manner. This includes through the preservation and restoration of its essential basic structures and functions.

Resilient Development - Development processes and actions that address the risks and impacts of disasters and climate change while progressing to stronger and resilient communities.

Risk - The combination of the probability of an event and its negative consequences.

Risk assessment - A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that, together, could potentially harm exposed people, property, services, livelihoods and the environment on which they depend.

Risk management - The systematic approach and practice of managing risks in order to minimise potential harm and loss.

Vulnerability - An internal characteristic of an affected element, describing its propensity or predisposition to be adversely affected. The characteristics of a person, or grouping, such as a household, community, country, and their situation, that influences their capacity to anticipate, cope with, resist, and recover from an adverse pressure. Vulnerability is a result of diverse historical, social, economic, political, cultural, institutional, natural resource, and environmental conditions and processes.

Vulnerable group - Any collective or group of people that has the propensity or predisposition to be adversely affected, such as a household, community or country, and their situation, that influences their capacity to anticipate, cope with, resist, and recover from an adverse pressure.

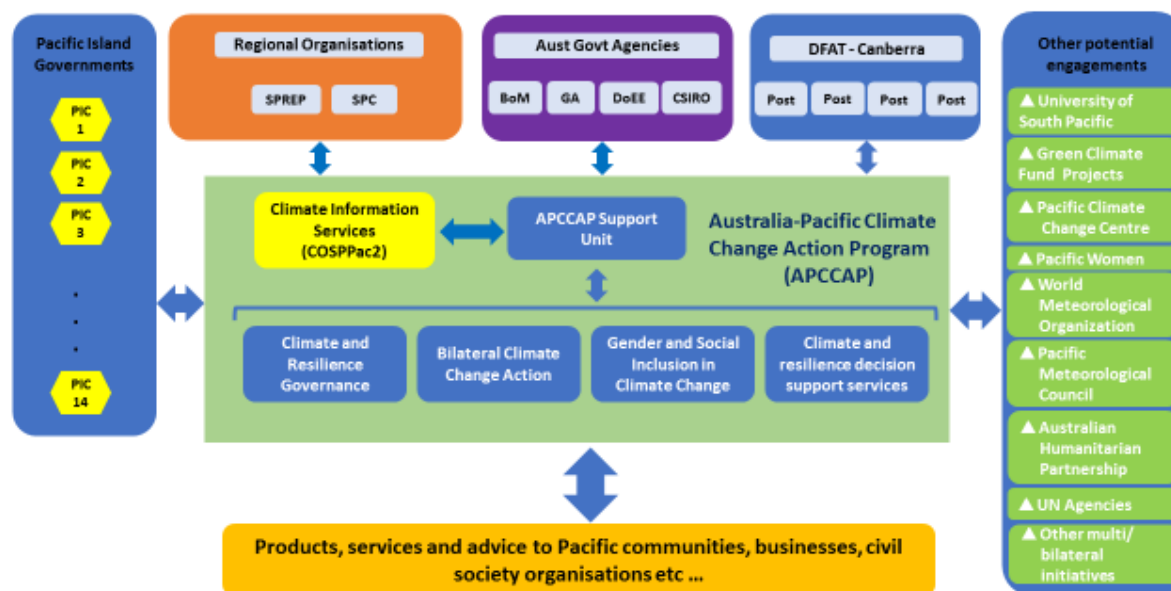
1. Executive Summary

Australia recognises that a stable, secure and prosperous Pacific is increasingly threatened by the impact of climate change. The Pacific is highly exposed to sea level rise, severe weather events and other environmental impacts. These directly affect access to food, water and shelter with negative consequences for the income of many Pacific people. Changes to Pacific economies and livelihoods threaten the stability of complex political and social relations, obstructing potential for economic development and creating drivers for displacement and migration.

In support of a stable, secure and prosperous Pacific and to align with the intent that Australia's climate change-related assistance in the Pacific is of high quality and is delivered in a coherent and coordinated manner, the Australian Government is establishing the Australia-Pacific Climate Change Action Program (APCCAP). This \$A75 million program is part of a commitment made by the Australian Government to invest \$A300 million over a four-year period from 2016-17 to 2019-20 to address climate change and disaster resilience in the Pacific.

The Climate and Oceans Support Program in the Pacific (COSPPac) - Phase 2 (the program) is a foundational climate information services sub-program of APCCAP, ensuring that policy and program development and implementation across the Pacific is properly climate informed. It continues Australia's investment in climate science and the provision of data, services and products that support good planning and decision making across its Pacific partners.

The diagram below outlines the component structure of APCCAP and positions it in relation to its key Australian and Pacific stakeholders.



Pacific Island communities, by virtue of their location, geography and demographics, are highly dependent on, and vulnerable to the variability of meteorological and oceanographic conditions. In addition, much of the Pacific is characterised by significant geo-instability which magnifies climate-induced change and is a significant natural disaster trigger. While climate variability and geodetic dynamism has always been a present and major factor influencing social, cultural and economic behaviour, climate change is increasing the level of unpredictability climate related risks. These

uncertainties are, in turn, necessitating the recalibration of the information base upon which planning and action by governments, communities, businesses and other sectoral groups are informed.

The aim of the program is for *Pacific Island national meteorological services to understand and use climate, ocean and sea level data and information to develop and disseminate useful products and services to Pacific Island governments and communities, building resilience to the impact of climate change, climate variability and disasters.*

The program logic aligns with broader APCCAP development assumptions that effective climate change action requires connected and coordinated action; an appreciation of the influence of climate variability and change on livelihoods and the environment; as well as a capacity to act to build resilience.

This \$A22.6 million investment will focus on delivering support to achieve four, high-level outcomes by the end of June 2022:

1. Services and products are user-centred and focus on resilient development application;
2. Valued, quality climate-related products and services are maintained;
3. The sustainability of data, products and services is maximised by transferring responsibility for delivery to Pacific partners where feasible and appropriate; and
4. Implementing partners recognise and share examples of connecting and leveraging for broader impact.

The program will be delivered through 3 project components:

1. *Pacific Sea Level and Geodetic Monitoring Project* generates, processes and analyses sea level and geodetic data to produce information products for analysis and the generation of sea level information-based products, such as tide calendars and survey/location data, to inform coastal infrastructure planning.
2. *Climate Data for the Environment* is a locally hosted climate data management system that provides each country with a central database for meteorological records. The data can be used to develop tailored services and information products to inform decision-making by governments, communities and sector groups to achieve their social, economic and environmental goals.
3. *Seasonal Prediction Project* supports the delivery of seasonal and intra-seasonal climate and ocean monitoring and prediction services that allow a range of Pacific Island end users to plan actions that mitigate the impacts of climate change and climate variability on their lives and activities.

The implementation arrangements proposed respond to an operational environment characterised by:

- A wide range of national and regional stakeholders faced with different environmental challenges and varying capacities and resources for collecting and utilising meteorological, oceanographic and climate change-related information to make sound development decisions.
- A diverse range of risks that, while often common across the 14 Pacific country partners, are sometimes unique to particular locations, partners and user groups.
- A complex donor environment where sustainability of investment requires effective cooperation and agreement to ensure the identification of coherent, resource-efficient and mutually supportive solutions founded on standardised data collection systems.
- Increasing donor resource constraints that require close cooperation between program components and with other relevant programs to identify and leverage limited technical and financial resources for maximum mutual benefit.

- A need to maintain and build upon, where resources allow, the substantial investments made to date that have established a valued network of climate data collection and information management systems across the Pacific.
- A need to maximise Pacific regional and national capacity to allow progressive transition of climate information services while acknowledging that, due to the interdependencies associated with climate monitoring, the dynamics of technical change and the technical complexity and resource intensive nature of many climate and ocean monitoring operations, total management transfer is infeasible.

The Program is structured to:

- recognise resource constraints and require the exploration of innovative technical solutions and the deployment of cost-effective strategies involving the smart application of shared resources that can meet carefully prioritised demands in a manner that reduces the operational and maintenance burdens for PIC governments;
- provide pathways via the wider APCCAP framework to connect with broader bilateral, multi-lateral and other donor sponsored development programming, in a manner that contributes to and leverages off these other investments for maximum combined impact;
- monitor and evaluate performance to not only record progress against implementation plans, but identify progress towards outcome achievement and measures the impact on the wellbeing of end-users and their communities, plus contribute to continuous learning and program refinement; and
- establish management and consultative processes that are respectful and inclusive, giving 'voice' to stakeholders while ensuring disciplined decision making around the application of financial and technical resources to maintain operational alignment with agreed objectives and end-of-program outcome achievement.

Acknowledging the findings of various evaluations of previous climate-change related investments, and drawing from wider experience of supporting development in the Pacific, the Program builds on the respectful relationships that have been established by the implementing and delivery partners over many years of engagement in the Pacific.

The program will apply a 'development first' approach that places affected people at the centre of planning. It will focus on building delivery partner capacity to engage through a dynamic two-way process that increases community awareness of climate change and its impact, ensures that products and services meet the multi-dimensional needs of targeted audiences, and are designed to be accessible and easy to use.

Critically, the program will place a premium on ensuring that delivery partners engage with end users in a way that acknowledges the gendered nature of many climate change and disaster management needs and response actions and applies broader social inclusion principles to ensure the benefits arising from the investment are accessed equitably. Delivery partners will be supported to devise communication strategies that maximise the legitimacy of the products in the eyes of end users and ensures the effectiveness of their dissemination. This could include the application of traditional knowledge, the use of local languages, the identification of appropriate media for dissemination and, where appropriate, the establishment of local partnerships to effectively reach users.

This design document describes the activities and management structures and outlines the human and financial resources available to achieve the desired program outcomes. The annexes including the completion of the performance assessment framework, the risk register and confirmation of COSPPac2's consultative and management structures, will be agreed between the implementing and delivery partners at a pre-implementation workshop scheduled for March 2018.

2. Background and context

Australia recognises that a stable, secure and prosperous Pacific is increasingly threatened by the impact of climate change. The Pacific is highly exposed to sea level rise, severe weather events and other environmental impacts, which directly affect access to food, water, shelter and income for many Pacific people. Changes to Pacific economies and livelihoods threaten the stability of already complex political and social relations, obstructing potential for economic development, creating drivers for displacement and migration.

At the September 2016 Pacific Islands Forum, the Australian Prime Minister announced a package of climate change support to the Pacific of \$A300m over four years. This funding comprises \$A150 million in Australian bilateral aid investments, \$A75m through disaster resilience investments, and \$A75 million in regional investments through the Australian Pacific Climate Change Action Program (APCCAP). This support will take a multi hazard approach to building resilience, in line with the Framework for Resilient Development in the Pacific².

COSPPac2 is a key program within the framework of APCCAP. A budget allocation of \$A22.6 million has been allocated to finance the program's operations over four years from July 2018 to June 2022.

2.1 History of Australian assistance

Australia has been providing meteorological, oceanographic and sea level monitoring support to the Pacific since 1991.

The South Pacific Sea Level and Climate Monitoring Project (SPSLCMP, 1991-2012) helped establish a network of tide gauges and geodetic stations that provide sea level measurement data, information and a range of related services across the Pacific. The Pacific Islands Climate Prediction Project (PICPP, 2003-2012) strengthened capacity in seasonal climate prediction and provided a range of climate-related information products.

As a consequence of the International Climate Change Initiative (launched in 2008 to meet high-priority adaptation needs in vulnerable countries), Australia expanded its support in the Pacific. The Pacific Climate Change Science Program (PCCSP, 2009-2011) and the Pacific-Australia Climate Change Science Adaptation Planning Program (PACCSAP, 2011-2014) supported a range of science, communication and capacity building activities to improve the understanding of current and future climate across the 14 targeted Pacific countries³.

In 2012, the Climate and Oceans Support Program in the Pacific (COSPPac1) consolidated and continued the support provided by SPSLCMP and PICPP and continued the development of some products and services initiated under PCCSP and PACCSAP. It also expanded support for capacity development and communications for Pacific countries.

Key activities under COSPPac1 included the maintenance of the Pacific Sea Level Monitoring Network, production and support of the climate and ocean monitoring and prediction products and services, production and archival of traditional knowledge and further development of a database management tool (CLiDE) that allows data to be stored safely, accessed easily and enabled the meteorological services to analyse and share their local information to improve infrastructure development.

² Framework for Resilient Development in the Pacific: An Integrated Approach to Address Climate Change and Disaster Risk Management 2017 – 2030

³ Cook Islands, Fiji, Federated States of Micronesia, Kiribati, Nauru, Niue, PNG, Palau, Republic of the Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu

COSPPac1 also developed sector-specific products such as forecasting tools to help health authorities implement strategies to reduce the risk of malaria and supported the production of a more localised seasonal forecasting product which, through improved drought monitoring, assists communities to maximise their water security.

COSPPac2 will build on these Australian investments and ensure that their contribution is integrated with Australia's bilateral investments and contributes to its broader regional engagement through APCCAP.

2.2 Policy foundations/rationale for Australian engagement

COSPPac2 will be guided by a range of current policy drivers for Pacific and Australian engagement in climate change-related programs. In addition, COSPPac2 will be guided by a Climate Change Action Strategy that outlines Australia's approach to integrating climate action and disaster resilience across the Australian Aid Program. The Strategy is expected to be released in 2018.

2.2.1 Pacific Policy Framework

The overarching governing policy for all climate action in the Pacific is the *Framework for Resilient Development in the Pacific (2017-2030)*. The FRDP provides high-level strategic guidance to different stakeholder groups on how to enhance resilience to climate change and disasters in ways that contribute to, and are embedded in, a sustainable development ethos. COSPPac2, as part of APCCAP, reflects the intention of the FRDP to pursue climate change action and disaster resilience in an integrated manner.

COSPPac2 will ensure that its work aligns with the FRDP and with global reporting obligations under the Sendai Framework for Disaster Risk Reduction⁴, the Paris Agreement on Climate Change⁵ and the UN Sustainable Development Goals⁶. The program will draw from these sources for its own performance reporting needs, wherever possible, in order to avoid adding to the existing reporting obligations.

Pacific Island Meteorological Strategy (PIMS)

The Pacific Meteorological Council (PMC) has adopted a strategy to ensure that the National Meteorological Services of Pacific Island Countries and Territories are able to provide relevant weather and climate services to their people to make informed decisions for their safety, socio-economic well-being and prosperity and sustainable livelihoods.

The Strategy identifies four priority areas for action:

- Improved weather services, in particular aviation, marine and public weather services.
- Improved end-to-end multi-hazard early warning systems.
- Enhanced infrastructure (data and information services) for weather, climate and water.
- Improved climate services.

The Strategy sets out priority areas in a matrix of Pacific outcomes and activities that can be

⁴ Sendai Framework for Disaster Risk Reduction 2015-2030

⁵ UN Framework Convention on Climate Change – 21st Conference of the Parties, Decision 1/CP.21, 29 January 2016

⁶ Transforming our world: the 2030 Agenda for Sustainable Development, UN General Assembly Resolution A/70/L, 25 September 2015

undertaken at national, regional and international levels. Secretariat for the Pacific Regional Environment Programme's (SPREP) Pacific Meteorological Desk Partnership Secretariat will regularly monitor and report to the PMC on progress and undertake an annual assessment of progress towards achieving the Pacific Key Outcomes.

COSPPac2 will ensure that its work aligns with priorities set out in the strategy.

Pacific Geospatial and Surveying Strategy (PGSS)

Geospatial and geodetic data provides the geographic elements needed to effectively map meteorological and oceanographic information against earth measurements and to deliver a multi-hazard approach to actions to address climate change and disaster preparedness and response.

Supported by the Pacific Community (SPC), the Pacific Geospatial and Surveyors Council (PGSC) is an independent regional body advancing geospatial and surveying standards and capacity for PICs. Its work is guided by a Pacific Geospatial and Surveying Strategy.

The PGSS presents a ten-year plan to modernise and upgrade the standards of survey and geospatial technology in the Pacific to support better decision making in matters of land and marine management. Specifically, it will improve support for the monitoring and analysis of the impacts of climate change in the near-real time for adaptation and mitigation purposes.

The geodetic elements of COSPPac2 supported by Geoscience Australia and SPC in partnership with Pacific national land and survey departments, will contribute to the implementation of the PGSS through the replacement and upgrading of aged geodetic equipment and enhance partner institutional capacity through training and technology transfer.

2.2.2 Australian policy framework

COSPPac2 as part of APCCAP is contributing foundational climate information services in support of Australia's bilateral and regional assistance to PICs to help them take informed action in response to climate change and disaster risk management.

Australian Aid Policy

Australia's aid policy⁷ notes that external shocks, including natural disasters, conflict, and economic shocks severely undermine growth, reverse hard-won development gains and increase poverty and insecurity. It also acknowledges that Australia's region is highly vulnerable to these shocks, and their impact is becoming more extreme as climate-related disasters become more severe and frequent. Women and children are often the most exposed to these risks, losing income, opportunities and facing increased risk of sexual and gender based violence during crises.

The Pacific Regional Aid Investment Plan requires Australia's regional aid program to complement efforts at the bilateral level to address the Pacific's economic growth challenges and reduce poverty.

APCCAP seeks to contribute, as part of a wider commitment, to progress Australian Aid policy priorities. By bringing together previously separate activities including COSPPac2, APCCAP aims to improve the cumulative impact of Australia's investments in the Pacific.

⁷ Australian Aid: Promoting Prosperity, Reducing Poverty and Enhancing Stability, DFAT June 2014

2.3 Australia-Pacific Climate Change Action Program⁸ (APCCAP)

With Australia's climate change support being delivered in an increasingly fragmented and crowded donor environment, often with weak links to Pacific development plans, the need for effective coordination and cooperation is more important than ever.

Under the overarching framework provided by APCCAP, COSPPac2 will continue the work undertaken during its first phase and support the production and management of climate change, climate variability and disaster information that can be used by Pacific stakeholders to support sound climate and disaster resilient development.

The COSPPac2 sub-program brings both the proven value of its technical contributions and the strong Pacific partnerships it has developed over many years to the wider APCCAP. COSPPac2 can amplify the value of its services by being part of this wider framework of Australian climate change and disaster management-focussed investments. By doing so, it ensures that its contribution is considered as part of a whole-of-policy approach to climate change and disaster resilience as articulated through the *Pacific Regional Aid Investment Plan*⁹.

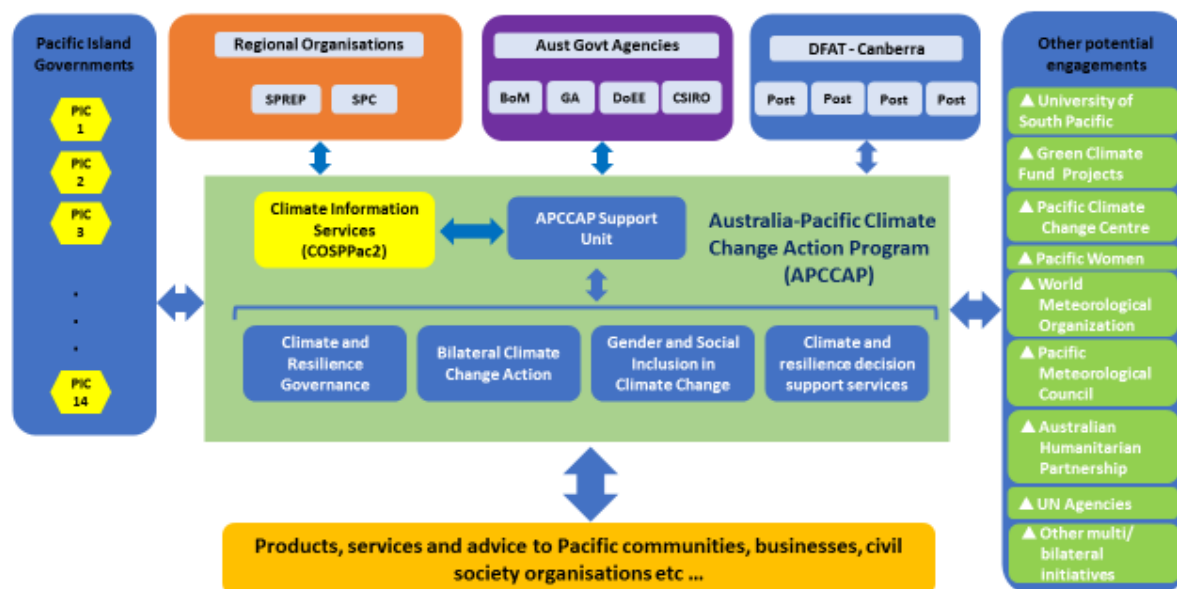
APCCAP will support improved communication and dissemination of information through the provision of specialist communication and knowledge brokering assistance. APCCAP seeks to provide a coordinating mechanism for Australian Aid's support for climate change action and disaster resilience in the Pacific. Taking a multi-hazards approach, APCCAP seeks to support Australia's bilateral and regional climate change engagement across the Pacific.

Complimenting existing bilateral programming, APCCAP will include:

- A **support unit** providing additional technical expertise, reporting on climate change accounting expenditure and up-to-date knowledge of regional activities and knowledge, undertaking monitoring and evaluation and helping to mainstream climate and disaster resilience into development activities;
- A **climate change and resilience governance** component that will support efforts to better integrate climate change issues with national government priorities with a view to increasing program effectiveness and long term sustainability.
- A **bilateral climate change action** component that will provide specialist technical support to DFAT's bilateral and regional posts to help integrate climate change and broader disaster risk reduction into its bilateral programming.
- A **gender, social inclusion in climate change** component that will commission research and develop a set of tools and resources that can be applied to support gender equity and social inclusion in climate action efforts by DFAT, its development partners and regional stakeholders.
- **Climate and resilience decision support services** that will provide targeted consultation, analysis and information that can contribute to more effective responses to climate change.
- A **climate information services** component which encompasses COSPPac2 and is detailed in this document.

⁸ Further details about the APCCAP Framework can be found at <http://dfat.gov.au/about-us/business-opportunities/tenders/Pages/design-document-australia-pacific-climate-change-action-program-support-unit.aspx>

⁹ Pacific Regional Aid Investment Plan, 2015-16 to 2018-19, DFAT September 2015



APCCAP will broker connections mainly between Australia’s bilateral programs, monitor and evaluate climate change investment performance, ensure that technical and management resources available through APCCAP are leveraged in a manner that allows Australia’s aid investments in the Pacific to be properly climate change informed and confirm that all funded activities work to promote Australian Aid’s gender equality and social inclusion policy objectives.

In order to align with the intent that Australia’s climate change-related assistance in the Pacific is of high quality and is delivered in a coherent and coordinated manner, COSPPac2 will work closely with the APCCAP Support Unit as the management hub for APCCAP. Through this mechanism, COSPPac2 will both draw from relevant technical expertise offered through APCCAP to support its programming and provide relevant climate and geodetic data and technical support to other development and disaster management programs to ensure that their activities are informed by a technically sound evidence base.

2.4 The development challenge

Pacific Island communities, by virtue of their location, geography and demographics, are highly dependent on, and vulnerable to the variability of meteorological and oceanographic conditions. In addition, much of the Pacific is characterised by significant geo-instability which magnifies climate-induced change and is a significant natural disaster trigger. While this climate-related variability and geodetic dynamism has always been a present and major factor influencing social, cultural and economic behaviour, climate change is increasing the level of unpredictability around climate drivers. These uncertainties are, in turn, necessitating the recalibration of the information base upon which planning and action by governments, communities, businesses and other sectoral groups are informed.

2.4.1 Environmental issues/challenges

As described in the APCCAP framework, Pacific island countries are highly vulnerable to the impacts of climate change, climate variability and disasters. These include the potential effects of increased temperature and rainfall, alongside rising sea levels, increased ocean acidification and the expected increase in frequency and/or intensity of weather related disasters.

Some of the critical environmental vulnerabilities include:

- Tropical disturbances such as tropical cyclones which are associated with heavy rain, mudslides and landslides, strong wind, destructive storm surge and waves.
- Sea level rise which impacts land use from infrastructure placement to the contamination of water sources as a consequence of the infiltration of seawater into fresh water lenses.
- Seasonal climate drivers such as the El Niño Southern Oscillation (ENSO) which generates the conditions for the episodic nature of drought and extreme rainfall and flooding.
- Volcanic eruptions, earthquakes and tsunamis that have sudden and dramatic impact on people's lives, livelihoods and infrastructure.
- Extreme temperature events that exacerbate drought, human and animal heat stress and the steady general rise in ocean temperatures that result in marine phenomena such as coral bleaching with consequent impact on economic and livelihood activities such as fishing and industries like tourism.

2.4.2 Stakeholder challenges

Faced with the environmental challenges outlined above, the institutional, social and economic challenges inherent in small, island states, leave Pacific island countries with less capacity to reduce their vulnerability.¹⁰ The key stakeholder challenges that will be faced by COSPPac2 and its implementing partners fall under three broad categories: communities, institutions and sectors.

Pacific Island Communities

Reflective of the region's geography and demography, the vulnerabilities, capacities and needs of communities across the Pacific are highly diverse. This limits the utility of generic services and products and creates a demand to generate many tailored products.

Compounding this challenge, remoteness, low populations and small and fragile formal economies makes delivering at scale difficult. Thus, the unit cost of service provision is high by global standards and the capacity of most Pacific communities and their governments to apply own resources to meet their particular needs is now, and likely to remain, limited.

Institutions

Many of the operational constraints for COSPPac2 will reflect the challenges faced by national governments, regional organisations and Pacific Island communities, which are the ultimate beneficiaries of COSPPac services and products. The challenges for the main institutional constituencies are listed below.

National Meteorological Services – Characteristic of the countries where they operate, NMSs are faced with varying technical capacities and levels of resource support from their national governments. The ability to develop economies of the scale necessary to sustain the highly technical and expensive systems associated with climate service provision is very limited in the Pacific. NMSs are qualified and committed to provide climate-related services but they are often constrained by a lack of human and financial resources to develop, maintain and deliver these services to the extent desirable.

Land and Survey Departments – The same technical capacity and resource constraints characteristic of NMSs also feature for LSDs. An additional challenge for LSDs is their lower visibility and influence with communities and in the government and private sectors. While the continual and often dramatic

¹⁰ Ibid World Bank 2012

variation in weather makes the work of NMSs prominent, the ‘slow-burn’ of rising sea levels and most geodetic change makes it much harder for LSDs to influence decisions that should be informed by the topographical changes arising from the intersection of geological dynamics and climate change. While earthquakes, volcanic eruptions and tsunamis do have a dramatic and costly impact, advice that may result in higher land use development costs or result in dislocation that disrupts communities can often be ignored when such events are assessed as ‘possible’ in order to realise short term benefit.

Regional Organisations – the key implementing partners engaging in COSPPac2 are the Pacific Community and the Secretariat for the Pacific Regional Environment Programme. These organisations are the primary regional source of information management, dissemination, analytical services and capacity development. Through various programs they assist PICs to formulate climate change and disaster risk management adaptation plans, policies and strategies and support the development of proposals by member States for external funding. In addition, the University of the South Pacific is implementing a small, nascent program to train meteorologists to improve regional training capacity over the longer term.

Ensuring that regional organisations have both the capacity and the orientation to serve their National constituencies is an ongoing challenge. Financing from PIC member contributions is insufficient to ensure any significant independence from international support. Much of their capacity is provided through donor-funded projects tied to specific activities which often limits their ability to respond ‘on demand’ to member state and territory requests for tailored services.

Sectors

Beyond these institutional and community constraints, there are a wide range of sector groups that are faced with particular challenges as the impact of climate change progresses. The ability of these groups to sustain and expand their contribution to the economies of the region requires high quality, tailored climate information services to inform sector-specific actions.

The capacity of COSPPac2 delivery partners to provide the climate and geomorphological data that contributes to the development of policies, programs and actions that provide an enabling environment that supports vital economic and livelihood activity is critical.

The Pacific Roadmap for Strengthened Climate Services¹¹ identifies seven priority areas summarised in the extracts below:

Agriculture and Food Security - Year-to-year climate variability has a large influence on agricultural production which is largely rain-fed (not irrigated). Longer-term systematic changes in climate which are modifying historical measures of climate variability have introduced a new complicating factor. At higher latitudes, some producers may benefit from a longer growing season while others in arid and semi-arid areas may experience increased water shortages. Any increase in the frequency and intensity of extreme events such as heatwaves, floods and droughts will affect grain, horticultural, forestry and livestock production.

Fisheries - Fish stocks and their rate of replenishment are quite sensitive to climatic variability and longer-term climate change with different fish populations responding in different ways. For example, changes in the distribution patterns of migratory fish varieties have been observed in association with normal seasonal cycles and with multi-year El Niño-scale variations in the ocean environment. Longer-term climate change and its manifestation within the ocean environment can be expected to

¹¹ The Pacific Roadmap for Strengthened Climate Services 2017-2026 was developed in conjunction with the revised PMS in 2017.

affect the reproduction, recruitment¹² and growth of oceanic fish species to the detriment of livelihoods and food security. To prevent overfishing and to rebuild overfished stocks under changing and uncertain environmental conditions, effective partnerships between fisheries scientists and managers and climate service providers are required. About 70% of protein in the diet of Pacific islanders is derived from near-shore pelagic and inshore reef and lagoon fisheries. Any decline in on productivity or biodiversity of these fisheries may have serious impacts on food security, which in turn will negatively impact the economic and social wellbeing of coastal communities.

Disaster Management – There is a growing awareness that effective disaster management requires the appropriate use of meteorological, oceanographic, hydrological and climate information as part of a comprehensive multi-sector, multi-hazard, and multi-level approach. The emergence of skill in seasonal to intra-seasonal climate prediction provides opportunities to make earlier assessments of natural hazard risk and disaster potential. For instance, seasonal climate outlooks help governments assess the likelihood - and hence manage the consequences of - excessive or deficient rainfall and tropical cyclones. The use of historical data for analysis of hazards patterns is no longer adequate because hazard characteristics are likely changing due to climate change. Climate services that support risk assessments from several weeks through seasonal to decadal time scales are therefore needed. Such assessments in turn inform long-term investments and strategic planning on, for instance, coastal zone management, development of new building codes and the retrofitting of infrastructure to withstand more frequent and severe hazards. They also allow more targeted planning for disaster response.

Health - The Pacific Islands are some of the most vulnerable in the world to the health impacts of climate change. Due to their unique geography, socio-economic condition and demographics, they have limited capacity to manage and adapt to the myriad health risks a changing climate brings. Clean air and water and adequate food and shelter are fundamental to human health and are heavily affected by weather and climate as are the distributions and transmission of many diseases. Severe weather events and prolonged climate anomalies such as hot or cold spells and drought are directly or indirectly responsible for many deaths throughout the year and can exacerbate the spread of diseases. Variations in weather and climate also affect the incidence of non-communicable diseases such as cardiovascular and respiratory diseases through exposure to poor air quality and increased reliance on imported foods. Furthermore, the spread of many communicable water-borne and vector-borne diseases is also modulated by variations in weather and climate with accompanying high societal and economic costs. Understanding the often-complex relationships between climate and health is fundamental to mitigating the associated risks. Accordingly, the health and climate services communities must work together to ensure that climate information is interpreted and applied effectively.

Energy - Energy systems are critical for economic and social development but the generation of energy by combustion of fossil fuels such as coal, oil, and gas is the cause of air pollution at a local scale and a source of carbon emissions at larger scale. Under the Paris Agreement all the Pacific Island countries have committed to a set of targets to reduce carbon emission through their National Determined Contributions. Additionally, the use of fossil fuels to support the energy sector is often a significant expenditure for Pacific Island Governments. Energy production, including the efficiency of production, is very sensitive to meteorological and climate events. The efficiency and effectiveness of energy systems, especially of the renewable form, will be strongly determined over their lifetimes by paying close attention to local climatic conditions both during the design and operational phases. Solar radiation and wind field analysis will be needed in support of solar and wind power generation as well as hydro-meteorological catchment information for hydropower operations. Partnerships and stakeholder engagement in applying weather and climate information, including the hydrological

¹² Recruitment is the number of new young fish that enter a population in a given year.

cycle, to energy systems development and production are needed to support policymaking and management decisions aimed at achieving energy efficiency and savings.

Water - Water is fundamental to life. Population growth, urbanisation and agricultural use have increased demand for water throughout Pacific Island countries. At the most basic level people need freshwater supplies for drinking but even resources for this purpose are being severely stretched in some locations especially when there is an extended downturn in rainfall. Groundwater reserves are being depleted and low-lying atolls are being contaminated by salt-water intrusion due to sea level rise and storm surges. Climate and water data collected on weekly, seasonal and annual timescales and at regional, national and local levels are essential to the development of effective water management strategies including flood and drought preparedness and response. As for agriculture, climate data and information underpin water resource planning, the management of current supplies and the assessments of future needs for use at both a community and industrial scale. Calculations of the frequency and duration of heavy rainfall, probable maximum precipitation, low-flow and flood forecasting all require cooperation between NMSs, National Disaster Management Offices (NDMOs) and water resource managers.

Tourism - The tourism sector is a significant contributor to national and local economies in Pacific Island countries. The interface between climate and tourism is multifaceted and complex, as climate represents both a vital resource to be exploited and an important limiting factor that poses risks to be managed by the tourism industry and tourists alike. All tourism destinations and operators are climate-sensitive to a degree and climate is a key influence on travel planning and the travel experience. The tropical and sub-tropical Pacific provides a near ideal base on which to build a tourism industry due to the relatively benign climate. With the exception of tropical cyclones and periods of low rainfall, conditions are generally favourable for tourists year-round. Key variables for the region from both a weather and climate perspective are sunshine, temperature, rainfall and wind. Also important are open and sheltered sea conditions for boating, fishing and surfing and sea temperatures in coral reef zones which, when high, can lead to episodes of coral bleaching.

Other Sectoral Needs – beyond the seven priorities presented in the roadmap, COSPPac2 partners will continue to provide valuable information, interpretation and product development to meet the needs of vital aviation and shipping operations across the Pacific. These sectors rely on high quality and timely meteorological and oceanographic information to ensure the safe and efficient deployment of expensive assets.

In shipping, operators such as harbour masters and pilots, government shipping agents, vessel captains, cruise operators, maritime police, local coast guards and others require accurate and up-to-date nautical charts, weather, current and tidal forecasts to ensure maritime safety and support the efficient deployment of seaborne assets.

In the aviation sector, accurate pre-flight and in-flight weather briefings in compliance with International Civil Aviation Organization standards are critical for ensuring the safe operation of air assets.

Similarly, COSPPac2-supported services and products are critical to other industrial activity such as mining where this occurs in the region. For example, the safety of construction and longer-term mining operations and minimisation of their environmental impact needs to be informed by a good understanding of the geomorphology and hydrology of mine sites.

2.4.3 Sustainability

Many of the challenges to sustainability are outlined in Section 2.4.2 above. The small size and aid dependence of many Pacific Island economies make the sustainability of investment a continuing challenge.

To the extent that the meteorological and oceanographic measuring systems supported under COSPPac2 supply data that informs Pacific, Australian, New Zealand and global meteorological and oceanographic forecasting and climate change and disaster management decisions, the responsibility for sustaining functions is a shared responsibility between Australia, New Zealand and PICs.

However as identified in recent program evaluations, Pacific Island governments contribute very little of their own resources to the operations of their own agencies. The fact that the continuation of climate information services remains highly dependent on project-based foreign assistance presents a significant risk to long-term sustainability.

COSPPac2 will explore increasing the sustainability of operations by:

- seeking out resource efficiencies, particularly in the light of continual technological change, to reduce the capital and recurrent cost burden of network maintenance and systems operations;
- continuing to identify elements of operation that can be feasibly transferred and prioritise capacity development for such transition and develop clear, time bound exit strategies. (These progressively remove support while concurrently engaging with, and incentivising governments to, apply own resourcing for continued function.);
- ensure that monitoring systems are capturing resource expenditures in a manner that allows for the identification of the cost of service provision and product generation to inform realistic capital and recurrent cost calculations and downstream budgeting;
- continue to search for and develop innovative technical solutions that reduce the operational and maintenance burdens for PIC governments; and
- continuing to build the capacity and value generation delivered through the NMSs and LSDs such that Pacific Island governments recognise the importance of continued investments in their local meteorological service and lands and survey agency. The advocacy of local stakeholders that value the services provided will also make a valuable contribution to promoting the value of NMSs and LSDs to government.

In addition, COSPPac2 will work with the climate governance elements of APCCAP to identify opportunities to engage with Pacific Island governments to encourage greater priority be given to resourcing these vital services in recognition that their operations provide an essential underpinning for economic and social development.

Ultimately the provision of the sound financial and technical foundations needed to sustain climate information services will only be achieved through concerted discussion and agreement at the highest level of government. The Australian Government may need to consider whether the issue is one of sufficient importance that it should be elevated to high level intergovernmental forums. If such a decision was made, COSPPac2's M&E and financial management systems should be structured to generate the resource and cost information required to inform such discussions.

2.4.4 Implementation challenges

The Pacific, by virtue of its location, geography and demography presents a range of implementation challenges that will need to be addressed by COSPPac2 implementing and delivery partners. These include:

- *Geographic* – the remoteness of many countries present many access challenges which impose significant costs and constrains the capacity to provide frequent face-to-face support to national partners and undertake regular quality monitoring.
- *Cultural* – The Pacific communities are diverse and often demonstrate resilience. Experience elsewhere shows that products that judiciously combine traditional knowledge with conventional climate information are more likely to be trusted by the community, particularly when expressed in local language and when communicated via a readily accessible media platform. Ensuring that program partners can tap into and apply diverse sources of traditional knowledge will be critical for ensuring that products and services have the necessary legitimacy in the views of end-users that will ensure that the advice provided is acted upon.
- *Capacity* – it is difficult for small island states with restricted and fragile economies to resource and maintain the technical, institutional capacities needed to fully support the complex scientific systems that underpin climate services.
- *Political* – while the reality of climate change is driving Pacific Island governments to prioritise actions to support adaptation and resilience, the level of government commitment to resourcing agencies and ensuring that the information and advice they produce is properly integrated into policy and program development and implementation varies widely.
- *Private sector engagement* – while the understanding of the physical and economic impact of climate change on business operators across the Pacific is growing, the capacity to adapt to protect assets and maintain operations varies widely across the business community.
- *Donor/other relevant development activity coordination* – stocktakes of climate-change related activity highlights a diverse set of partnerships delivering often highly uncoordinated support. National Governments are often reluctant to impose conditions on foreign support for fear of its withdrawal. This has the potential not only to waste scarce resources, but can impose unsustainable operational and maintenance burdens and undermine efforts to build an integrated response to climate challenges across the Pacific.
- *The 'last mile' challenge* – COSPPac2 is a supporting resource for regional and national government agencies, it does not directly engage with end-users to address their particular needs. However, the value of the investment can only be properly assessed through the lens of end-user needs. The ability of national delivery partners to engage proactively with end-users and support them to take actions that are informed in a manner that maximises their resilience in the face of climate change, climate variability and natural disaster will go a long way towards enhancing the utility of products generated and the ultimate value derived.

2.4.5 Lessons learned

Three recent reviews of Australia's climate change programming provide valuable insights into what contributes to effective climate change investment and which should be applied to COSPPac2.

Office of Development Effectiveness Review of Climate Change Assistance¹³

This review of 26 Australian Aid investments (19 Pacific initiatives including the current phase of COSPPac) concluded that Australian technical, research and policy bodies have highly regarded skills and strong regional relationships to offer, which are essential for climate change action in the aid program. The review concluded that *'there is opportunity to strengthen a whole of government approach to climate change, underpinned by clear strategic goals and framed by a DFAT-led monitoring framework, ensuring technical and development agencies work in partnership, towards a common policy framework, to deliver effective climate change programs'*.

¹³ Review of Climate Change Assistance – Office of Development Effectiveness, **Draft report October 2017**

The review considered that the investments most likely to produce significant climate benefits were those that:

- Are longer term engagements (greater than five years) that facilitate and support longer term partnerships and relationships.
- Use a 'development-first' approach to climate and disaster risk management, putting affected people at the centre of planning and ensuring strong engagement across relevant departments and through different levels of government.
- Are implemented by partners with strong experience of using science to drive development outcomes.
- Are explicitly linked to partner country needs and have explicit climate or disaster-related outcomes.
- Are supported by appropriate technical expertise (internal or external) during the entire project investment cycle.

COSPPac2 builds on respectful partnerships that have evolved over 26 years of coordinated action informed by strong scientific and technical underpinnings. Building on this sound technical base, Phase 2 will seek to strengthen the capacity of its implementing and delivery partners to deliver products of meaning and relevance to end users.

COSPPac Phase 1 Completion Review

A completion report¹⁴ was recently commissioned by the Bureau, which provides a wide range of detailed observations about the design and implementation of the first phase of COSPPac.

The report concluded that the program overall was successful in delivering against its objectives. While there are many quite granular observations and recommendations at the project level that should be considered by implementing and delivery partners as they determine their operational approaches in Phase 2, outlined below are some of the whole-of-program-level observations that have been applied to the design of COSPPac2.

The review concluded that the success of a development program is contingent on ensuring the delivery partners determine their own priorities. Critical observations included that:

- Much is gained in development terms when project partners have real control of the allocation of funds to activities.
- Ownership of a development activity by the recipients is broadly accepted to be a prerequisite for effecting change. COSPPac's governance structure characterised by higher national agency membership than Australian and regional agency membership, contributed to Pacific ownership.
- Implementing partners have little incentive to engage actively in a project that does not address their priorities or let them determine processes.

The reviewers found that key elements of COSPPac's design had contributed to significant positive changes in Pacific NMS's capability. These included:

- Supporting NMS-nominated highest priorities such as systematic training programs helped accelerate capacity development.
- Innovations led by Pacific partners are demonstrably creating demand for more climate and geodetic information from national decision makers.

¹⁴ Climate and Oceans Support Program in the Pacific Phase 1, the Bureau of Meteorology, October 2017

- While noting that Pacific travel can be very expensive, the review concluded that regional meetings, staff exchanges and attachments have been invaluable for ensuring common understandings and for skills transfers that has been transformative in both directions.

The review also noted a number of important decision making and communication principles that contributed to success:

- Pacific partners usually prefer decisions to be made by consensus. It was noted that the Bureau's long relationships with Pacific colleagues enabled it to conduct regional meetings in a culturally-appropriate manner.
- Constant communication among the program management team, NMSs, LSDs and regional agencies was critical to ensuring that the program focussed on Pacific priorities.

Gender and climate change in the Pacific: A situational analysis¹⁵

Commissioned by DFAT to inform development of APCCAP, this analysis proposes a set of principles to inform good practice in gender programming.

The analysis confirmed that, currently, over half of the aid to climate change in the Pacific fails to take into account women's needs and specific contributions. It concluded that more effort is needed to ensure climate change activities are designed for the equal benefit of both women and men and contribute to the advancement of gender equality.

The paper proposed two overarching aims for climate change programming:

1. build profile, commitment to and understanding of the gender aspects of climate change programming; and
2. ensure technical support, tools and research is available to improve practice.

Noting that the Green Climate Fund (GCF) requires alignment with national gender plans and policies, the paper recommended that Australian climate change programming be aligned with these policies and engage with Pacific governments to ensure that climate change-related policies and wider gender policies are mutually supportive and strengthened.

Acknowledging the important role that various networks play across the Pacific, the paper noted that opportunities to engage with and support networks relevant to climate change adaptation should be identified and supported to ensure that network activity is structured to create space for women and other marginalised groups to participate.

Linkages to APCCAP with its specific and resourced remit to pursue gender and wider social inclusion principles in climate change programming and the emphasis on user-centrism should incentivise compliance. Achievement of user-centric service provision and product development that lies at the heart of Outcome 1 (refer Section 3.1 below) cannot be assessed as successful if products and services do not address the needs of women.

Of particular interest for COSPPac2, is the application and integration of traditional knowledge systems and the interaction between these and gender and social inclusion in the development and communication of tailored information products. Traditional knowledge and communications are explored in more detail in Section 4.10

¹⁵ Gender and Climate Change in the Pacific: A Situational Analysis, DFAT, February 2017

There is opportunity for engagement between the SPC Gender Unit and the technical and management staff involved in the program to identify critical barriers to and opportunities for promoting greater gender equality in the workplace. Gender and wider social inclusion issues are canvassed in more detail in Section 4.9.

3. Investment Description

As part of Australia's a broader program of assistance to help countries deliver innovative and practical actions on climate change, COSPPac2 continues Australia's investment in climate science and the provision of data and services that underpin good planning and decision making.

This program must be viewed as one of a suite of bilateral and regional development programs in support of a stable, secure and prosperous Pacific. More specifically it sits as a foundational element in APCCAP ensuring that policy and program development and implementation across the Pacific is properly climate informed.

3.1 Program logic

The aim of COSPPac2 investment is *Pacific Island national meteorological services understand and use climate, ocean and sea level data and information to develop and disseminate useful products and services to Pacific Island governments and communities, building resilience to the impact of climate change, climate variability and disasters.*

The program logic for COSPPac2 asserts that the data collection, information storage and processing systems that have been developed through past partnerships must be maintained and upgraded where needed, to ensure that PICs have the capacity to fulfil local climate information and disaster management requirements.

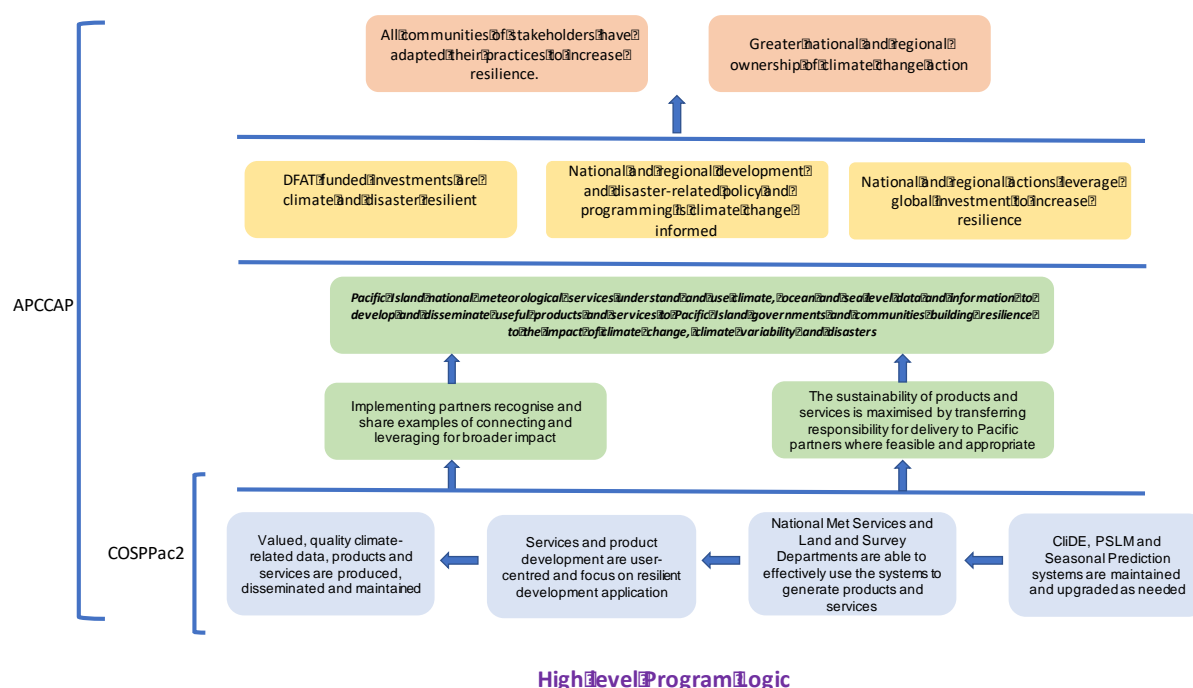
COSPPac2 will work with NMSs and LSDs to embed the capacities and capabilities needed to engage in constructive two-way consultations with end-user clients to ensure that products and services properly inform end user actions. It is critical that products and services support actions that protect people, minimise risk, mitigate negative impacts on livelihoods and economic activity and build resilience to changes driven by climate change, climate variability and the interaction of these phenomena with geomorphic disturbance.

The response needed to tackle the challenges posed by climate change and natural disasters require a multi-dimensional approach that reflects the holistic way communities of users make decisions in their lives. The products and services developed help build resilience to the impact of climate change and disaster in a manner that recognises the reality that destabilisation in the environment is usually multi-factoral.

The COSPPac2 program logic aligns with the broader APCCAP development assumptions that effective climate change action requires connected and coordinated action, an appreciation of the influence of climate variability and change on livelihoods and the environment, and a capacity to act to build resilience.

The positioning of COSPPac2 within the framework of APCCAP supports the identification and leveraging of connection with other relevant investments to maximise combined impact. While continued effort to transition functional responsibility to national and regional partners where practicable helps build ownership and ensure the sustainability of the products and services produced.

These implementation principles ensure COSPPac2's contribution to Pacific development is recognised; and that Pacific constituencies have an increased awareness of the role climate information services play in informing development that helps incentivise ownership and drives greater domestic resource investment in climate change action.



High Level Program Logic

3.2 Program Outcomes

The program will focus on delivering support to achieve four outcomes by the end of this phase:

Outcome 1 - Services and products are user-centred and focus on resilient development application.

The program will support the development of accurate climate and weather-related data, information and services and ensure that products are developed in a form that both draws from multiple information sources where necessary and produces advice that is accessible, easily understood and can be applied to meet defined, multi-dimensional end-user needs.

Outcome 2 - Valued, quality climate-related data, products and services are maintained.

The program will ensure that the data and information collection, management and storage systems used to generate and maintain a suite of valued services and products continue to function.

Outcome 3 - The sustainability of products and services is maximised by transferring responsibility for delivery to Pacific partners where feasible and appropriate.

Where it can be demonstrated that Pacific Island agencies have the technical and financial resources needed to operate and maintain climate information service functions, the program will actively work to transition those to the relevant national or regional bodies and provide necessary ongoing support aligned with a clear time-bound exit strategy where applicable.

Outcome 4 - Implementing partners recognise and share examples of connecting and leveraging for broader impact.

The program will found its implementation approach on the principle of proactive coordination and cooperation and engagement with others supporting Pacific development, particularly through its

connection within APCCAP, to ensure that its work contributes to combined efforts to improve the climate and disaster resilience of Pacific communities.

3.3 Project descriptions

COSPPac2 will be delivered through three project components and a fourth management component that provides whole-of-program implementation support, cross-program technical support and program coordination as part of the broader APCCAP. *Note: outcomes and associated activities in red italics are considered unfunded priorities. These elements cannot be supported unless additional resources are secured or program savings are found.*

Note: Project staffing and budget breakdowns are provided in [Annex 4](#).

3.3.1 Pacific Sea Level and Geodetic Monitoring Project

The Pacific Sea Level and Geodetic Monitoring (PSLGM) Project, formerly the South Pacific Sea Level and Climate Monitoring Project (SPSLCMP), was developed in 1991 as an Australian Government response to concerns raised by member countries over the potential impacts of human-induced global warming on climate and sea levels in the Pacific region.

Its primary goal is to generate an accurate record of variance in sea level for the Pacific region and to establish methods to make these data readily available and usable by Pacific Island countries.

Under the project, processed and analysed sea level and geodetic data is made available to partner countries and the international scientific community. The data is used to produce information products for analysis and the generation of sea level information-based products such as tide calendars and survey/location data to inform coastal infrastructure planning.

In COSPPac Phase 2, the PSLGM Project will:

- continue core functions of collecting, analysing, storing and disseminating high quality sea level and geodetic data;
- optimise the operation of the network by extending calibration and maintenance intervals, as feasible;
- progress transition from acoustic to radar sensors by installing compatible surveyable mounts and complete preparatory scientific assessments;
- implement systems (processes and procedures) to maintain, upgrade and record all works completed for both the sea level and geodetic networks;
- enhance partner institutional capacity through training and technology transfer;
- improve the utility of information and the means of dissemination between delivery partners and users;
- enhance partner institutional capacity through training and technology transfer; and
- improve the utility of information and the means of dissemination between delivery partners and users.

In the absence of economies of scale, the cost and highly technical nature of some functions make full transition to the Pacific unlikely in the medium term. As the technical capacity of SPC and the PIC LSDs continue to grow, specialist technical activities will be transitioned. In Phase 2 it is anticipated that SPC will take on a larger proportion of the maintenance of the sea level monitoring stations currently managed by the Bureau.

Project objectives and intended end of phase outcomes

Objective 1 To continue maintenance and support for the PSLGM network.

Outcome 1.1 The equipment, calibration and data management systems are operational and meeting international standards.

Objective 2 To improve the PSLGM Network

Outcome 2.1 Sea level monitoring stations are upgraded with surveyable mounts and data logging equipment.

Outcome 2.2 Global Navigation Satellite Systems equipment is upgraded.

Objective 3 To continue to transfer responsibility for maintenance of sea level monitoring stations to Pacific agencies.

Outcome 3.1 NMS staff providing 'First in Maintenance'¹⁶ support.

Outcome 3.2 SPC manages the six-monthly infrastructure maintenance program.

Outcome 3.3 SPC can undertake in-field calibration and maintenance of sea level monitoring stations.

Objective 4 Maintain and further develop PSLGM products and services.

Outcome 4.1 Absolute sea level data¹⁷ is produced and is accessible to end-users.

Outcome 4.2 Products generated from the PSLGM systems are meeting user needs.

Stakeholders

Direct beneficiaries are the National Meteorological Services and Lands and Survey Departments of 14 Pacific Island Countries - Cook Islands, Fiji, Federated States of Micronesia, Kiribati, Nauru, Niue, PNG, Palau¹⁸, Republic of the Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

End-user beneficiaries include government departments including: Works, Infrastructure, Fisheries, Transport, Tourism, Forestry and Port Authorities. Beyond government agencies, beneficiaries include: island communities and commercial and private organisations such as tourism operators, farmers and agribusiness, civil engineering and construction firms.

Project components

System Maintenance

- The sea level and geodetic network maintenance and sensor calibration.
- Replacement of aging geodetic stations and tide gauges as required.

System Enhancements

- Installation of 15 surveyable mounts to allow replacement of acoustic sensors with radar sensors to reduce future maintenance demands.
- Installation of upgraded data logging equipment.
- Replacement of GNSS network equipment.

¹⁶ 'First in Maintenance' consists of a first sight check, cleaning of instrumentation and the site and preparing it for more technical maintenance such as calibration checks.

¹⁷ The Global Navigation Satellite System (GNSS) can be used to measure the vertical crustal motion of the Earth with respect to the centre of the Earth. This allows measurements that distinguish relative sea level rise from absolute sea level rise. For example, in the case of a tide gauge subsiding, if the land subsidence has been observed by GNSS, this trend can be removed from the relative sea level variation allowing the absolute sea level change to be derived.

¹⁸ Note there is no GNSS station or Bureau- maintained tide gauge in Palau

Transition

- Transfer 'First in Maintenance' responsibility of tide gauge equipment to NMS staff.
- Transfer management of the regular six monthly infrastructure maintenance program to SPC.
- Train and provide tools and equipment, including the procedures and records of work, to SPC technical staff to undertake in-field calibration and maintenance of sea level monitoring stations.

Services and product maintenance and development

- Expand tide calendars to describe the height differences between different tidal reference surfaces (e.g. mean sea level, lowest astronomic tide) and the onshore land height reference surface.
- Explore potential for producing calendars in additional locations.
- Maintain the real-time data displays of sea level data.
- Produce PSLGM reports and make them publically accessible.
- Produce tide calendars and introduce traditional knowledge information to improve product awareness and acceptance in communities.
- Update PSLM web pages to reflect COSPPac2 activities.

Project Management

- Prepare bi-annual progress reports and annual work plans.
- Manage annual Technical Coordination Committee meeting.

3.3.2 Climate Data for the Environment Project

Climate Data for the Environment (CliDE) is a locally hosted climate data management system used to archive NMS data.

CliDE provides each country with a central database for meteorological records and includes data entry forms, quality assurance tools, reports and raw data dumps for downstream application production and research. Using largely open-source software, it is a robust relational database with a web-based user interface that supports core NMS functions.

CliDE provides historical meteorological data that can be used to develop tailored services and information products to inform decision-making by governments, communities and sector groups to achieve their social, economic and environmental goals. CliDE data is also used to monitor climate extremes, year-to-year variability and longer term climate change.

Larger countries such as Fiji receive more than a thousand requests for data and information each year. CliDE products and applications automate data analysis allowing for consistent and timely responses to user needs. Applications also assist with monitoring extreme events (e.g. drought) and allow these extreme events to be compared with those in the past with regards to magnitude, duration and intensity.

The project will continue the work started in PCCSP/PACCSAP and COSPPac Phase 1 to consolidate meteorological data into one database for each PIC and improve data quality control.

In addition to COSPPac-developed applications, CliDE also provides a platform for CliDEsc - a New Zealand-developed application - that provides four South Pacific countries with additional products and reports such as a Fire-Weather Index.

With the core of CliDE in a mature state, the project will focus on enhancing products and services to better address the needs of end-users.

There is the potential to link the Seasonal Climate Outlook for Pacific Island Countries (SCOPIC) Drought Monitoring Tool to CliDE and develop a Pacific version of the Bureau's Australian Climate Monitoring application known as BLARE. BLARE tracks observations near real-time, placing them in a historical context, providing a low-cost intelligent system that interacts with CliDE on an event basis.

In Phase 2 SPREP will increase its responsibility for CliDE management. The development of SPREP staff capacity to enable them to take over all hardware maintenance from Year three will be a priority in Phase 2. The Bureau's role in supporting CliDE will be focussed principally on software development, user training, supporting data rescue and helping SPREP to maintain CliDE hardware and software.

Project objectives and intended end of phase outcomes

Objective 1 Maintain CliDE and support the archiving of meteorological data and metadata

Outcome 1.1 CliDE is fully operational in all 14 partner countries.

Outcome 1.2 Priority CliDE software deficiencies are fixed.

Outcome 1.3 All relevant partner country data currently stored on spreadsheets, portals, other databases and *offshore archives* are recovered and stored in CliDE.

Objective 2 Further develop CliDE to store additional meteorological and associated data, automate data quality management, export raw data in multiple formats and create basic climate statistics.

Outcome 2.1 CliDE is better able to process high frequency data inputs.

Outcome 2.2 NMSs are able to perform quality control including the identification and correction of suspect data.

Outcome 2.3 NMSs are able to supply high-quality raw data and basic climate statistics and produce reports and graphical products in formats that meet user requirements.

Objective 3 Develop new systems interfaces for monitoring of climate extremes

Outcome 3.1 New system interfaces that enable near real-time reporting of meteorological extremes are operational.

Objective 4 Provide NMS training and support user data needs

Outcome 4.1 NMS staff are able to input and retrieve CliDE data effectively.

Outcome 4.2 NMS CliDE administrators can confidently keep CliDE operational.

Outcome 4.3 NMSs are able to respond to user requests for data and information in a manner that is most fit for purpose.

Objective 5 Transition of CliDE hardware maintenance to SPREP

Outcome 5.1 Help-desk function is transferred from the Bureau to SPREP to allow NMSs to report hardware and software issues.

Outcome 5.2 Responsibility for replacing old and faulty hardware, installing software updates, backing up and restoring CliDE data has been transferred to SPREP.

Stakeholders

The direct beneficiaries are the NMSs.

End-user beneficiaries include (but are not limited to) national governments (particularly disaster management agencies, agriculture and forestry departments), criminal and civil prosecutions bodies and regional authorities. Beyond the public sector, other end-user beneficiaries include: NGOs and organisations/groups operating in the following areas: insurance, aviation, construction, water supply, renewable energy, agri-business, farmers, near and offshore fisheries, secondary and tertiary students and academics/researchers.

Project components

Systems Maintenance

- Maintain the CliDE server, Uninterruptable Power Supply (UPS) and Network-Attached Storage (NAS) Units in the 14 countries.
- Replace the above hardware by end of phase 2.
- Fix priority CliDE software deficiencies.
- Provide refresher software training to users in all partner countries.
- Provide training to system administrators in all partner countries.
- Assist partner countries to recover meteorological, *hydrological and oceanographic* data stored in other systems and format and archive these in CliDE.

Systems Enhancement

- Further develop CliDE to allow the archiving of additional meteorological, *hydrological and oceanographic* data.
- Add data quality control algorithms to automate the identification of anomalous data.

Transition

- Transfer help-desk function from the Bureau to SPREP to allow NMSs to report hardware and software issues.
- Transfer responsibility to SPREP for replacing old and faulty hardware, installing software updates, backing up and restoring CliDE data.
- Provide training to SPREP IT Officers to set up CliDE servers and back up and transfer data between servers.
- Undertake an assessment of future training delivery options including the scope to contract training to the University of the South Pacific (USP) or transfer training responsibilities to SPREP.

Services and product maintenance and development

- Improve data exports and basic statistical products generated within CliDE.
- *Improve drought monitoring by linking the SCOPIC Drought Monitoring Tool to CliDE.*
- *Monitoring meteorological extremes near real-time by developing a Pacific version of the Bureau climate extremes analysis and monitoring system - BLARE.*
- Enable CliDE to share data with CliDEsc – an early warning system applications tool developed by New Zealand.

Project Management

- Prepare bi-annual progress reports and annual work plans.
- Manage the CliDE Coordination Committee to coordinate activity including data exchange between COSPPac2 and other projects (e.g. Vanuatu GCF project).
- Participate in other regional and international forums as required.

3.3.3 Seasonal Prediction Project

Many of the impacts of climate variability and change are felt over an extended temporal range (weeks to seasons). At this range, the combination of natural variability (such as the El Niño-Southern Oscillation) and climate change interact to exacerbate the impacts of meteorological events such as droughts, heavy rainfall and heatwaves (oceanic and over land) that have major impacts.

The Seasonal Prediction Project supports the delivery of seasonal and inter/intra-seasonal (or within season) climate and ocean predictions and adds value to climate (e.g. drought) and ocean (e.g. coral bleaching) monitoring.

The Seasonal Climate Outlook for Pacific Island Countries (SCOPIC) statistical model was transitioned to SPREP in Phase 1 and is now largely in maintenance mode. Funding in Phase 2 will support the cost of a climatologist and a communications and training specialist, recruited by SPREP, to maintain the system.

A range of web-based portals provide public access to meteorological and oceanographic information and data produced by the model. The principal of these is the Ocean Portal that provides the public with access to ocean monitoring and prediction services and allows information such as sea and sub-surface temperature, salinity, current direction, coral bleaching, sea level and tidal gauge data to be presented in maps or other graphical forms. The Portal was transitioned to SPC in 2016 and is maintained by oceanographers with IT, capacity development and communications support. Phase 2 will support SPC to update the data and further develop the software for enhanced operations.

If resources are identified at a later stage, data updates for two other climate monitoring portals, the Tropical Cyclone Portal and Pacific Data Portal, could be undertaken to improve user utility. The Tropical Cyclone Portal supports cyclone prediction and helps evaluate risk associated with infrastructure development. The Pacific Data Portal contains data from over 100 Pacific observation sites and allows users to visualise mean and extreme temperature and rainfall time series in the form of trends, running and long-term averages. This tool assists with climate change monitoring and has also been used for infrastructure development in the Pacific.

In line with global advances, the Bureau is in the process of improving its seasonal prediction operations by introducing, through a partnership with the UK's Meteorological Office, a new seasonal forecasting system known as ACCESS-S which produces predictions with greater spatial and temporal range and can better accommodate climate change. This work is supported by the Australian Government's Department of Agriculture and Water Resources.

In Phase 2, the Pacific's seasonal prediction systems supported by Australian Aid will transition to ACCESS-S. One of the more obvious improvements available to the region in moving to ACCESS-S will be to provide greater detail in Pacific-wide forecasts including an increase in resolution from 250 km to 60 km. At this resolution, the model will be able to, for example, differentiate between the climates of western and eastern Viti Levu, Fiji. Another obvious improvement is the ability to make predictions at multi-week timescales, rather than only quarterly. These frequencies are often critical for decision making. Increased spatial and temporal resolution will also improve the representation of important large-scale climate drivers, like ENSO, leading to better multi-week and seasonal forecast accuracy across the Pacific.

Project objectives and intended end of phase outcomes:

Objective 1 **Maintain the existing DFAT-funded climate and ocean monitoring and prediction systems.**

Outcome 1.1 SCOPIC, Ocean, *Tropical Cyclone and Pacific Climate Change Data* Portals are up to date and fully operational.

Outcome 1.2 Priority software deficiencies in SCOPIC and the Ocean, *Tropical Cyclone, and Pacific Climate Change Data* Portals are fixed.

Objective 2 Upgrade seasonal prediction systems.

Outcome 2.1 Pacific based ACCESS-S seasonal and intra-seasonal predictions are developed, verified and accessible

Outcome 2.2 The Ocean Portal is able to deliver more sector-specific services.

Outcome 2.3 A verification study comparing ACCESS-S with other models has been undertaken and results published in a science journal.

Objective 3 Maintain and further develop climate prediction project products and services

Outcome 3.1 The Climate Bulletin and Red Cross Alert includes content for all partner countries and is issued monthly.

Outcome 3.2 COSPPac climate and ocean monitoring and prediction information products include ACCESS-S predictions.

Objective 4 Provide climate and oceans monitoring and prediction training to NMSs to meet end-user needs

Outcome 4.1 NMSs can produce climate and oceans monitoring and prediction products and services that meet user needs.

Stakeholders

The direct stakeholders are the NMSs.

End-user beneficiaries include (but are not limited to) maritime safety, disaster management and environmental management authorities, and water, energy, agriculture, forestry, and fisheries departments. Beyond the public sector, key end users are farmers, fishermen, students, researchers, planners, construction management, insurance, shipping and tourism industries. Other users include NGOs such as the Red Cross and World Wide Fund for Nature and international bodies such as the Intergovernmental Panel on Climate Change and the World Meteorological Organization.

Project components

System Maintenance

- Fix priority software deficiencies and maintain SCOPIC, the Ocean, *Tropical Cyclone and Pacific Climate Change Data* Portals.
- Update data in the Ocean, *Tropical Cyclone and Pacific Climate Change Data* Portals.
- Update documentation for the IT systems.

System Enhancement

- Verify and, if required, calibrate regional scale ACCESS-S seasonal and intra-seasonal predictions.
- Downscale¹⁹ and verify ACCESS-S forecasts.
- Present ACCESS-S predictions through new and existing web-based portals.
- Review ACCESS-S predictions and compare with existing models used in the Pacific.
- *Upgrade the Ocean Portal to address identified short-comings and regional priorities.*

¹⁹ Where historical observations are available, downscaling will allow ACCESS-S predictions to be made available at much finer spatial scales, including for specific locations e.g. Apia, Samoa.

Services and product maintenance and development

- Deliver the COSPPac Bulletin, Online Climate Outlook Forum reports and Red Cross Alert.
- Provide training in the use and delivery of services associated with the above climate and ocean prediction tools and information products.
- Support NMSs to develop tailored community seasonal calendars and other products using seasonal climate prediction forecasts and applying available traditional knowledge.
- Review NMS and end user needs and update NMS capacity development plans.
- Support the NMSs to register user requests and seek out, record and report feedback.

Project Management

- Prepare bi-annual progress reports and annual work plans.

3.3.4 Coordination and Communications Unit (CCU)

The CCU centralises common program management functions and manages the technical resources needed to support the, communications, training and capacity development activities that are common across all three project components.

The CCU management team comprises the program managers from the Bureau and the implementing partners, program administration staff and the capacity development, training, and communication officers in SPC and SPREP.

Capacity development, training, and communication support are key cross cutting elements of COSPPac2. There is a significant skill involved in translating the scientific outputs into user-friendly information that can be applied by decision makers. During COSPPac1, delivery partners derived significant, recognisable benefit from training in soft skills such as communications and stakeholder engagement. Building on this foundation, COSPPac2 will continue efforts to bridge the communication gap that can exist between the scientist and the decision-making user.

The centralisation of common management functions delivers efficiencies and ensures that project--level management can focus on delivering the technical and capacity development elements of each component.

Rather than seek to allocate communications, training and capacity development resources at the project level, their placement within the CCU recognises that this expertise is not technically-specific to particular projects. As a pooled resource, the CCU is able to ensure that a common but effective approach to communications and capacity development is being applied.

In summary, the CCU:

- supports effective collaboration and coordination between the implementing partners, the Australia Pacific Climate Program Change Action Program, delivery partners and other stakeholders such as PIC Government agencies, regional partners such as USP and global partners such as the World Meteorological Organization; and
- coordinates the operations of the three project components and provides cross-cutting capacity development, training and communication;
- provides day-to-day administrative support, financial and procurement-related administration and coordinates and consolidates performance monitoring and evaluation.

Functions

- Cross-program support
 - Capacity development and training
 - supports training needs analysis and assists projects deliver workshops, work attachments and student internships;
 - supports in-country and sub-regional training in CliDE, seasonal predictions and related climate and oceans science;
 - in-country workshops for NMS stakeholders (and other national agencies such as aid coordination and planning ministries, finance ministries and treasury, sectoral ministries, local community leaders, and national and local media) to increase their understanding of climate change and variability, seasonal predictions and the potential applications of seasonal climate forecasting; and
 - training for climate staff in science communication, presentation skills and media.
 - Communication
 - supports projects to improve the user-accessibility of products and services;
 - support projects to apply traditional knowledge to product and service development by engaging with the cultural communication expertise based in SPREP and with their wider Pacific networks; and
 - provide and support media engagement.
 - Gender and social inclusion – facilitate engagement with SPC and APCCAP gender and social inclusion specialists to support the development of gender and socially inclusive products and services.
 - Work planning support – provide input, coordinate and consolidate project plans for whole-of-program management.
- Financial Management
 - Manage program budgets and track expenditure against project annual work plans.
 - Disburse approved funds to implementing partners and ensure they provide certified financial reports.
 - Provide financial reports to DFAT, the Implementing Partner Management Group (IPMG) and the Steering Committee as required.
 - Produce an end-of-phase financial acquittal to DFAT.
- Procurement Services
 - Initiate procurement of capital equipment and associated maintenance services.
 - Maintain an asset register.
 - Procure consumables for project activities.
 - Procure recurrent services (utilities, telecommunications etc.).
 - Manage and coordinate all program travel and accommodation requirements.
 - Undertake tenders and procure goods and services through existing panel arrangements.
- Human Resource Management
 - Support recruitment processes.
 - Provide and support personnel management.
 - Engage with SPC Human Resource Management staff to support inclusive recruitment and personnel management practices in NMSs.
- Monitoring, Evaluation and Learning

- Consolidate project level performance reporting for consideration by implementing partners and the Steering Committee.
- Coordinate the production of progress and traffic light reporting.
- Facilitate the interpretation and sharing of performance reporting for continuous learning and program adaptation.
- Secretariat Services – support the conduct of meetings for the following groups:
 - IPMG;
 - Steering Committee; and
 - the Internal Bureau Program Board.
- APCCAP Coordination
 - Engage with the APCCAP Support Unit to ensure that COSPPac2 contributes to and leverages climate change and disaster risk reduction and management-related activity across the Pacific.
- Other responsibilities
 - Respond to requests for information and briefings.
 - Coordinate the maintenance of the COSPPac website.
 - Support relevant non-project activities where appropriate.

The CCU's contribution to the effectiveness of communications, training and capacity development will be monitored and evaluated through project-level performance assessment.

3.4 Program Budget

The total budget for COSPPac2 is \$A22.6 million. This comprises \$A21 million to finance ongoing operations over the 4 years from July 2018 to June 2022 and a special allocation \$A1.6 million financed from 2017-18 to finance the GNSS upgrade.

<i>COSPPac2 Components</i>	FY 2018-19 (AUD)	FY 2019-20 (AUD)	FY 2020-21 (AUD)	FY 2020-21 (AUD)	TOTAL \$
PSLGM	\$3,496,215*	\$1,935,778	\$1,979,540	\$2,025,477	\$9,437,010
Seasonal Forecasting	\$750,824	\$1,295,767	\$1,326,471	\$1,358,127	\$4,731,190
CLiDE	\$361,512	\$475,982	\$619,610	\$497,811	\$1,954,916
Communication and Coordination	\$1,565,350	\$1,599,070	\$1,637,210	\$1,675,255	\$6,476,884
Total COSPPac2 Components	\$6,173,902	\$5,306,597	\$5,562,831	\$5,556,671	\$22,600,000

*Includes a special allocation of \$A1.6 million financed from 2017-18 for the GNSS upgrade.

<i>COSPPac2 Partners</i>	FY 2018-19 (AUD)	FY 2019-20 (AUD)	FY 2020-21 (AUD)	FY 2020-21 (AUD)	TOTAL \$
Bureau	\$2,047,239	\$2,720,509	\$2,804,352	\$2,727,900	\$10,300,000
SPC	\$1,288,474	\$1,331,377	\$1,376,425	\$1,423,725	\$5,420,000
SPREP	\$626,167	\$627,633	\$739,774	\$746,425	\$2,740,000
GA	\$2,212,022	\$627,078	\$642,280	\$658,620	\$4,140,000
Total COSPPac2 Partners	\$6,173,902	\$5,306,597	\$5,562,831	\$5,556,671	\$22,600,000

<i>Bureau of Meteorology</i>	FY 2018-19 (AUD)	FY 2019-20 (AUD)	FY 2020-21 (AUD)	FY 2020-21 (AUD)	TOTAL \$
Personnel	\$1,202,291	\$1,585,098	\$1,616,800	\$1,649,136	\$6,053,324
Operating costs	\$626,664	\$835,669	\$860,893	\$858,355	\$3,181,581
Capital procurement	\$10,650	\$79,333	\$0	\$0	\$89,983
Activity costs	\$207,634	\$220,409	\$326,659	\$220,409	\$975,112
Total Bureau Budget	\$2,047,239	\$2,720,509	\$2,804,352	\$2,727,900	\$10,300,000

<i>The Pacific Community</i>	FY 2018-19 (AUD)	FY 2019-20 (AUD)	FY 2020-21 (AUD)	FY 2020-21 (AUD)	TOTAL \$
Personnel	\$671,635	\$705,217	\$740,478	\$777,502	\$2,894,833
Operating costs	\$279,929	\$289,250	\$299,037	\$309,313	\$1,177,528
Capital procurement	\$0	\$0	\$0	\$0	\$0
Activity costs	\$336,910	\$336,910	\$336,910	\$336,910	\$1,347,640
Total SPC Budget	\$1,288,474	\$1,331,377	\$1,376,425	\$1,423,725	\$5,420,000

<i>Secretariat of the Pacific Regional Environment Programme</i>	FY 2018-19 (AUD)	FY 2019-20 (AUD)	FY 2020-21 (AUD)	FY 2020-21 (AUD)	TOTAL \$
Personnel	\$529,446	\$535,842	\$626,217	\$631,558	\$2,323,063
Operating costs	\$56,049	\$56,761	\$66,956	\$67,563	\$247,329
Capital procurement	\$6,375	\$0	\$0	\$0	\$6,375
Activity costs	\$34,298	\$35,029	\$46,602	\$47,305	\$163,233
Total SPREP Budget	\$626,167	\$627,633	\$739,774	\$746,425	\$2,740,000

<i>Geoscience Australia</i>	FY 2018-19 (AUD)	FY 2019-20 (AUD)	FY 2020-21 (AUD)	FY 2020-21 (AUD)	TOTAL \$
Personnel	\$489,848	\$291,345	\$296,439	\$302,368	\$1,380,000
Operating costs	\$429,074	\$252,045	\$259,643	\$267,468	\$1,208,230
Capital procurement	\$784,000	\$35,020	\$36,071	\$37,153	\$892,243
Activity costs	\$509,100	\$48,668	\$50,128	\$51,631	\$659,526
Total GA Budget	\$2,212,022	\$627,078	\$642,280	\$658,620	\$4,140,000

Definitions	
Personnel	Personnel costs include all salaried positions related to the program. This includes staff whose salaries may be partially charged to this program as well as staff dedicated exclusively to this program. This does not include consultant fees, which are included under activity costs.
Operating costs	Operating costs include all expenses related to overhead operations including office rent, corporate utilities, corporate information and communications technology charges and any corporate administrative charge.
Capital procurement	All costs related to the procurement of major capital equipment (valued at > \$2000).
Activity costs	All costs related to the implementation of project activities. Includes participant transport costs, per diems, catering, development of training materials, consultant and trainer fees related to program activities, costs associated with the production of materials, facility rental for specific events and activities, in-country activity utilities e.g. power to sea level stations, public awareness campaigns etc.

Component-level budget breakdowns are provided in [Attachment 4](#).

3.4.1 Financing unfunded priorities

At \$A22.6m budget over four years, the nominal budget allocation to COSPPac2 approximates the funding levels provided to Phase 1 but represents a slight reduction from previous years.

The project plans and budgets presented here are designed to fit within this resource envelope. Some projects have a number of unfunded priority activities that align with program objectives but cannot be initiated unless savings are realised or additional funding is identified at some later point.

If additional funds are identified through cost savings or as a result of additional budgetary allocation, a rigorous prioritisation process will be required to ensure that decisions about how these funds are allocated is made to maximise both the efficiency and effectiveness of expenditures in line with program objectives.

In the first six months of implementation, the CCU will request project managers to submit costed proposals for their unfunded priorities. These will be reviewed by the IPMG against whole-of-program objectives and a consolidated list of priority unfunded activities will be approved.

Should savings or additional budget be identified in any given year, the IPMG will consider the funds available for allocation and approve expenditure against some of the priorities from this pre-approved list.

In addition, the IPMG can consider and approve requests for other resource reallocations where necessary to maintain alignment to objectives and maximise outcome achievement.

4. Implementation arrangements

The implementation arrangements proposed for Phase 2 respond to an operational environment characterised by:

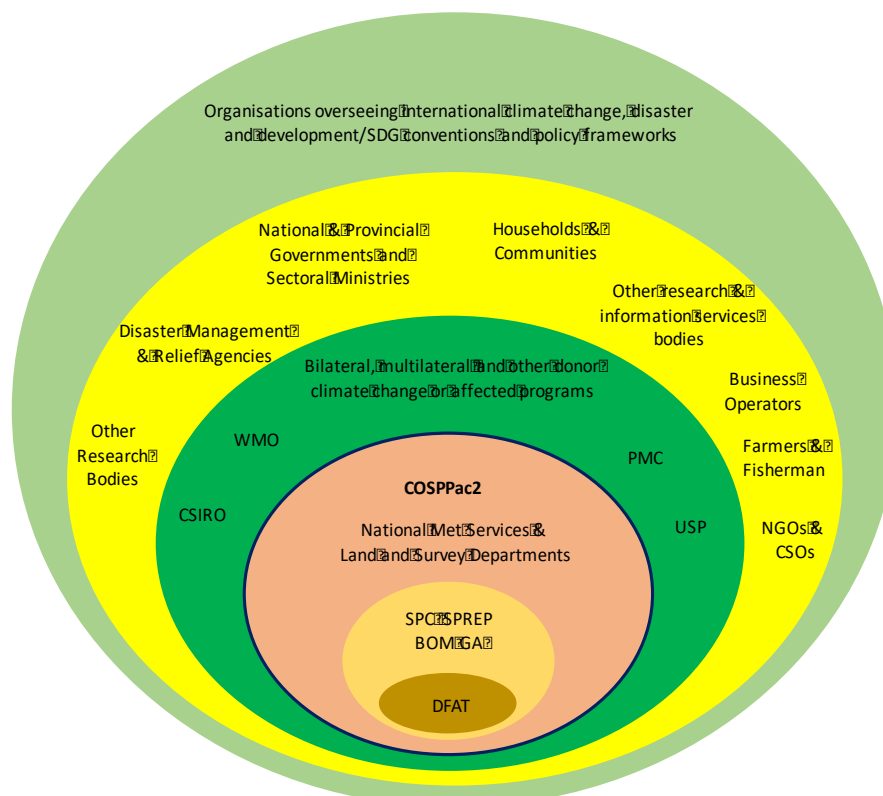
- A wide range of national and regional stakeholders faced with different environmental challenges and varying capacities and resources for collecting and utilising meteorological,

oceanographic and climate change-related information to make sound development decisions.

- A complex donor environment where sustainability of investment requires effective cooperation and agreement to ensure the development of coherent, resource-efficient and mutually supportive solutions founded on standardised data collection systems.
- Increasing resource constraints that require close cooperation between program components and with other relevant programs to identify and leverage limited technical and financial resources for maximum mutual benefit.
- A need to maintain and build upon, where resources allow, the substantial investments made to date that have established a valued network of climate data collection and information management systems across the Pacific.
- A need to maximise Pacific regional and national capacity to allow progressive transition of climate information services while acknowledging that, due to the interdependencies associated with project-generated products and services, the dynamics of technical change and the technical complexity, and the resource intensive nature of many climate and ocean monitoring operations, total management and operational transfer is infeasible.

4.1 Stakeholder engagement

COSPPac2 will engage directly with a number of national and regional stakeholders and, through them and the products and services it supports, will have at least indirect connections to an extensive range of communities of users across the Pacific. The directness of stakeholder relationships to the program is presented below:



The program's outcomes very much acknowledge the importance of deploying successful engagement strategies that are focussed on fulfilling the needs of these user communities while noting the varying

degrees of separation that exists between COSPPac2 projects and users where engagement is often mediated through other service providers.

Outcome 1 requires that *services and products are user-centred and focused on resilient development application*. To achieve this, COSPPac2 must support its national agency partners to diversify their operational approaches to ensure that they not only collect, interpret and disseminate meteorological, oceanographic and geodetic information but that they engage with various supplier and user communities to ensure that the products and services are demand responsive. Critical contributors to outcome achievement include ensuring that product and services development takes a multi-dimensional approach reflective of the way users approach problem solving more generally and that stakeholder engagement recognises the differing needs of both men and women and ensures the development of socially inclusive solutions.

Outcome 4 requires that *implementing partners recognise and share examples of connecting and leveraging for broader impact*. To achieve this, implementing partners must remain conscious of the wider stakeholder framework within which they operate and seek to both contribute to, and leverage other activities to amplify the benefits that flow from all climate change-related investment. In this area, the proactive use of wider implementing partner networks and engagement with the other APCCAP program elements will be a critical support to the achievement of this outcome.

In order to assess progress towards achieving these stakeholder-focused outcomes, COSPPac2 projects will need to support NMSs and LSDs to put in place strategies for monitoring their interactions with user groups. Where possible this should involve securing user feedback on the utility of services and products or, at least, maintaining a register of users including their contact details to enable sample surveys to be conducted at a later time. See Section 4.4 for further reflections on performance management.

4.1.1 Two-way stakeholder engagement

Critical to maximising the value to end-users of the services and products developed is ensuring that outputs:

- respond in a multi-dimensional manner to priority user needs that acknowledge the holistic approach users take to decision making;
- are informed by sound, relevant evidence;
- are produced in a manner that ensures the information can be understood by users, can be accessed in a practical way and that is presented in a manner that gives authority and legitimacy to the advice provided;
- offer solutions that can be realistically actioned given the resources available to users; and
- are administered in a manner that allows for follow up to verify relevance to user needs, confirm acceptance and to provide feedback for continuous improvement.

The fulfilment of these requirements recognises that user-centred services and product development is a two-way process. Deficits in user understanding of the drivers and impact of climate variability and change or the range and relevance of COSPPac2 operations will impede truly demand driven responses. The accurate specification of user requirements and the proper development of a response requires an active, two-way, user-centred process that enables service providers and users to work together to craft products and services of optimum utility.

The program itself, will not generally have direct engagement with end users, its activities are mediated by national government agencies and, in some situations, may involve the assistance of other intermediate partnerships to ensure that access to targeted user communities is effective. For

instance, a forecasting tool to inform planting decisions for household food production, may be developed by a national meteorological service, communicated by a government agricultural department through a local growers' association with experience of working with the women responsible for managing kitchen gardens at the village level.

Given that reality, COSPPac2, with the assistance of its regional partners and through APCCAP, will give priority to developing the capacities, practices and processes of delivery partners to allow for the development and application of dissemination strategies that optimise connections to end users.

Further insights into stakeholder communication including the role of traditional knowledge are provided in Section 4.10.

4.2 Principles for program governance and management

Critical to the success of COSPPac2 will be adherence to a set of governance and management principles that reinforce the partnership between Australia and participating Pacific countries and regional organisations. The governance principles aim to ensure that the technical and financial resources contributed by implementing partners are applied for greatest positive impact on the lives of Pacific Islanders by ensuring that the sectoral policies and development plans and the need for greater disaster resilience are properly climate informed.

Building on the experience of Phase 1, the following governance and management principles are proposed:

- The application of COSPPac2 resources are always aligned to the agreed program objectives and approved project plans.
- Management must be undertaken in a respectful, inclusive and participatory manner recognising the different cultural contexts and leadership arrangements that operate across the Pacific.
- Pacific ownership of the implementation processes and benefits must be optimised.
- COSPPac2 approaches must align with Pacific regional policies and national structures, systems and plans.
- COSPPac2 must work cooperatively with other Australian, other donor, national and international programs to optimise alignment and complementarity to ensure that all resources are applied for maximum positive impact.
- Governance and management must be transparent and accountable to all partner stakeholders.
- Governance and management structures should demonstrate and promote gender empowerment and equity and ensure broader social inclusion in all aspects of program operations.
- Governance and management arrangements will respect and be informed by broader governance agreements operating for Australian bilateral partnerships with Pacific Island Countries.

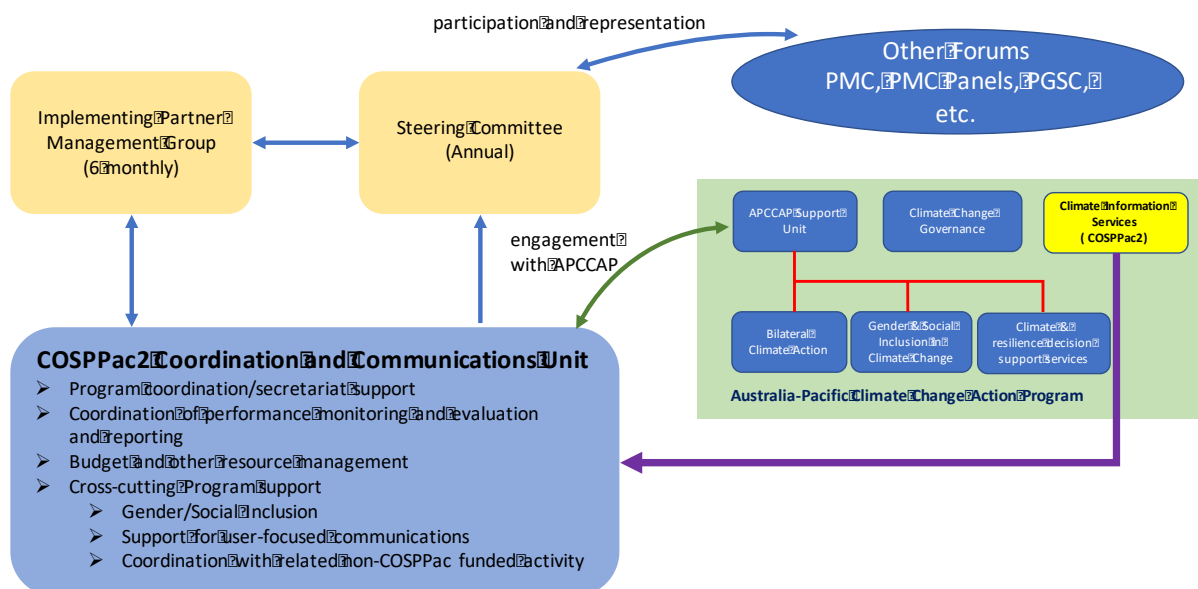
These principles will be reviewed and refined by the IPMG at the initial program implementation workshop proposed in March 2018.

4.3 Management and governance arrangements

COSPPac2's management arrangements are designed to ensure that available technical and financial resources are applied to optimise delivery impact. Critically, the structures deployed must:

- provide an avenue for national and regional stakeholders to influence what the program is delivering to support their development priorities maintaining a positive working relationship between Australia and its Pacific neighbours.
- offer clear linkages within the broader APCCAP program to ensure that COSPPac2 contributes to, and leverages, those wider bilateral and regional activities where meteorological, oceanographic, geodetic and climate change factors form a critical input.
- ensure that services and products respond to end-user demands and are presented in a manner that is both gender-responsive and socially inclusive;
- recognise resource constraints and require the deployment of cost-effective strategies involving the smart application of shared resources to meet carefully prioritised demands; and
- require that performance monitoring, management and evaluation not only records progress against implementation plans but identifies progress towards outcome achievement and measures the benefit to end-users and their communities.

Management and Governance Arrangements



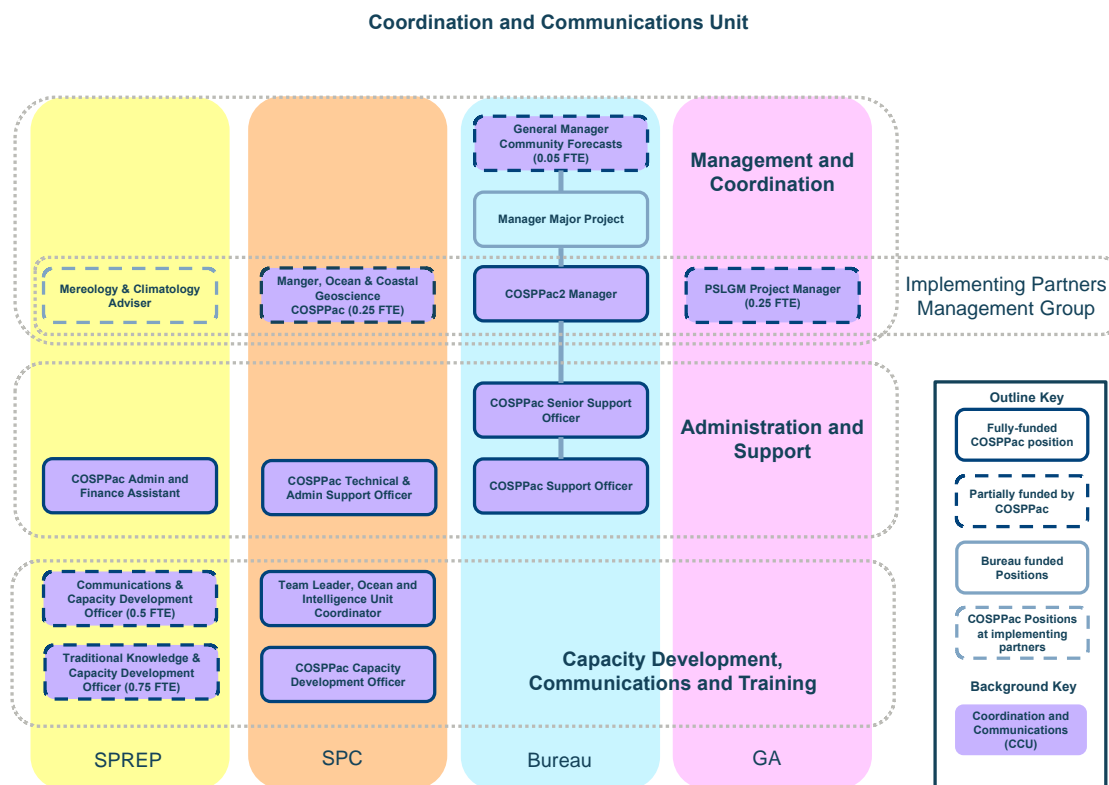
4.3.1 Coordination and Communications Unit (CCU)

The CCU is the oversight and management hub of COSPPac2. It is the central coordinating body that performs a range of day-to-day program support functions to allow the components to focus on fulfilling their mandated activities and ensures that the common technical resources applied to communications, training and capacity development are used efficiently and effectively.

The CCU's management resources will be located and shared between the Bureau offices in Melbourne, SPC in Fiji and SPREP in Samoa and will:

- provide the lead responsibility for the management and implementation of COSPPac2;
- manage the overall budget and technical resources for optimum efficiency;
- coordinate with the wider APCCAP through active engagement with the APCCAP Support Unit and represent COSPPac2 in APCCAP consultative processes once established;
- coordinate COSPPac2 monitoring and evaluation and prepare consolidated performance and financial reporting and ad hoc briefings for the Bureau, DFAT and other stakeholders as required;

- provide secretariat support to the Implementing Partner Management Group and the Steering Committee;
- provide cross-program technical support in areas that include: formulation and delivery of training and capacity building activities, quality control of products, end-user communication packaging and provide support to ensure that gender equality and social inclusion objectives are fulfilled;
- lead high-level representation with Pacific partner governments, media and regional and international agencies;
- be the initial point of liaison regarding program coordination with APCCAP, other donor, and international agencies on COSPPac-related matters; and
- support administrative operations including travel, procurement and staff recruitment.



Further details of the functions of the CCU are outlined in Section 3.3.4. A work program confirming the operational parameters of the CCU will be developed during the pre-implementation workshop scheduled for March 2018.

Indicative resource and financial budgets and relevant organisational structures for the four implementing partners are detailed in [Annex 4](#).

4.3.2 Implementing Partner Management Group

The Implementing Partner Management Group is responsible for the overall governance of the program and provides support, advice and direction to COSPPac2 project managers and the CCU with a view to ensuring that all activity is coordinated for maximum effectiveness and impact.

The IPMG will meet on a six-monthly basis and will:

- regularly evaluate performance and review program risks to ensure that performance is optimised for results and impact;
- consider project managers' costed but unfunded priorities against COSPPac2 objectives and approve a priority list of unfunded activities which can be supported if savings or other funding sources emerge over time;
- approve shifts in budget and other resource allocations where necessary to ensure resources are applied for maximum objective alignment and outcome achievement;
- consider and approve whole-of-program performance and financial reporting for dispatch to SPC, SPREP, Bureau, GA, DFAT and other senior stakeholders;
- taking into account the views of the Steering Committee, consider and approve component-level annual plans;
- represent COSPPac2 (IPMG Chair or nominee) at APCCAP governance meetings or other high-level meetings where program representation is required; and
- consider requests for unplanned activities and engagements and determine whether they align with the objectives of COSPPac2 and can be supported within the resource envelope available.

The membership will include:

- Project team leaders
- Representatives from SPREP and SPC
- Representatives from DFAT, the Bureau, APCCAP, GA

The CCU will provide secretariat support to the IPMG. A draft Terms of Reference for the IPMG is provided at [Annex 1](#).

4.3.3 Steering Committee

The Steering Committee will represent a wider group of stakeholders to provide strategic direction to COSPPac2 primarily through the IPMG. The Committee serves as a conduit for insights into the climate-related needs of Pacific Island stakeholders ensuring that all program partners have a common understanding of climate-related issues across the Pacific. The Steering Committee aims to ensure a joint approach to solving identified problems through agreed activities, working towards shared goals for the collective impact of the program as a whole.

The Committee will meet annually and report to DFAT, to:

- review and assess program performance including consideration of any emerging issues, risks and operational constraints that might have a negative impact on performance and results;
- apply performance assessment findings, share examples of good practice and reassess the risk environment to inform continuous learning and program improvement;
- represent the views of their constituencies as to the value and effectiveness of COSPPac2 activities;
- identify and discuss emerging issues and changes in the national and regional policy and development environment that might influence future programming; and
- review and comment on proposed component annual plans and prioritise programming options to the IPMG where necessary in consideration of available resources and program objectives.

The membership will include:

- A Senior Executive Officer (or their representative) from DFAT (co-chair), the Bureau and GA
- A Senior Executive Officer from SPC (co-chair)
- A senior officer from SPREP's Pacific Meteorological Desk

- A representative from the Australian Department of Environment and Energy
- **X** Meteorological Directors from Pacific Island NMSs and **X** Directors from LSDs (on a rotating basis)
- Others as approved by the IPMG.

Observers representing various communities of users and other donor and international agencies may attend from time to time with agreement of the IPMG. A draft Terms of Reference for the Steering Committee is provided at [Annex 1](#).

4.4 Performance management

Performance management relates to the processes associated with the monitoring and evaluation of program activity and its outputs, results and outcomes to meet accountability requirements, inform learning and continuous improvement efforts, for reporting results achievement against agreed objectives and to allow the assessment of progress towards agreed end-of-phase outcomes.

Performance management is viewed at three levels:

1. *Component-level monitoring and evaluation* against approved annual plans;
2. *Whole-of-program monitoring and evaluation* against the approved Performance Assessment Framework (PAF); and
3. *COSPPac2 results reporting* contributing to APCCAP performance reporting and as required to fulfil other Australian, Pacific regional and international reporting obligations.

Critical to the quality and utility of performance management is a focus on the selection of indicators that allow an objective assessment of performance against desired outcomes. Any emphasis on output monitoring should be limited to that needed to account for resource utilisation.

4.4.1 Component-level monitoring and evaluation

Program component plans (described in Section 3.3) outline a core set of objectives and outcomes to inform a performance assessment framework that will ensure progress will be measured over the four-year phase. A consolidated draft of the Performance Assessment Framework is provided at [Annex 2](#) and discussed further in Section 4.4.4.

More detailed activity/output level monitoring will be included in annual plans to provide adequate oversight of operations that ensures resources usage aligns with approved activity.

Most critical to the success of COSPPac2 will be the capacity to measure progress towards achieving Outcome 1 – *Services and products are user-centred and apply a multi-dimensional approach to their development*.

While COSPPac2 will rarely be directly involved with end-users, its success will be largely defined by its ability to demonstrate that its products and services:

- are foundational to the development of tailored responses to user needs; and
- are produced and disseminated in a manner that maximises both their accessibility and utility to end-users.

To that end COSPPac2 will work with its delivery partners to put policies and strategies into place that establish effective engagement processes and allow for the systematic collection and recording of user feedback for performance reporting and continued improvement of products and services. For

example, the Fiji Meteorological Service²⁰ already has such a feedback system in place. COSPPac2 could explore its suitability for use by other Pacific services.

The team managing each project will identify how its activities contribute to the achievement of higher whole-of-program objectives and describe the M&E arrangements including indicators, baselines and annual targets where relevant, data sources/methods of data collection and monitoring responsibilities. The conclusions reached in this exercise will inform modifications to the Traffic Light reporting system used during COSPPac1 to regularly monitor project-level progress against annual plans and to update risk assessments.

Progress reporting will be submitted by project team leaders to the CCU a month prior to each meeting of the IPMG.

4.4.2 Whole-of-Program monitoring and evaluation

The core tool for framing and guiding COSPPac2's performance management will be a Performance Assessment Framework that will describe the program and project-level end-of-phase outcomes required to achieve the COSPPac2 objectives as outlined in this document.

A draft PAF outlining potential end-of-phase outcomes and suggesting possible indicators to track progress against these is provided at [Annex 2](#). This PAF will be revised and fully populated with targets by the CCU in consultation with program stakeholders at the pre-implementation workshop in March 2018 for submission to the IPMG for approval prior to COSPPac2 commencement.

The CCU will report performance against the PAF at each meeting of the IPMG and will provide a briefing on progress to stakeholders at each annual Steering Committee meeting.

4.4.3 Linkages to APCCAP and other performance management and reporting obligations

To the extent possible, COSPPac2 outcomes and indicators will be crafted to provide meaningful results data to inform APCCAP's overarching performance assessment framework.

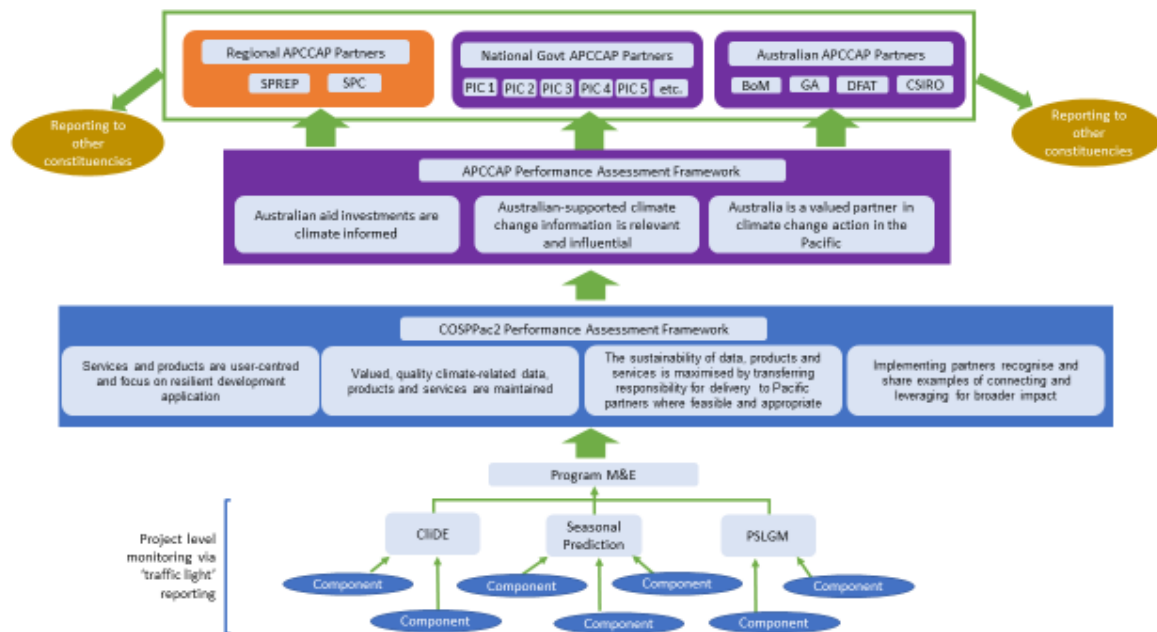
With coordination support from the CCU, COSPPac2 project team leaders will work with APCCAP to develop a performance assessment regime that ensures that COSPPac2's contribution to the effectiveness of Australia's aid investments across the Pacific are appropriately tracked and recognised.

Recognising that the activities supported by COSPPac2 contribute to the achievement of broader Pacific Island development priorities, the CCU in cooperation with the APCCAP Support Unit, will work to develop a monitoring mechanism that ensures that the impact of this wider contribution is identified and captured in COSPPac2 performance reporting. This requirement is reflected in Outcome 4 - *Implementing partners recognise and share examples of connecting and leveraging for broader impact*.

The diagram below seeks to position COSPPac2's performance management and reporting processes within this wider reporting environment.

Performance management and reporting pathways

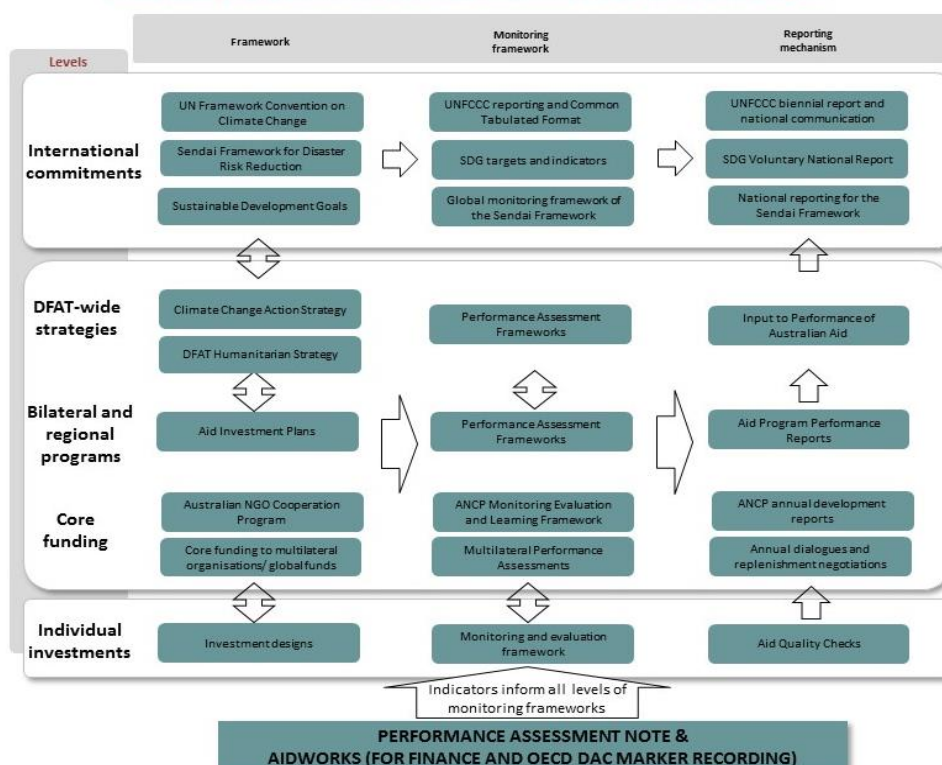
²⁰ <http://www.met.gov.fj/feedback.php>



APCCAP will coordinate a sample of end user case studies to verify and complement COSPPac2's M&E.

In the context of the wider Australian Aid Program, performance assessment reporting generated at the level of individual investments such as COSPPac2 are consolidated with the performance reporting from core funded programs to inform performance assessment across all regional and bilateral programs. These are then consolidated at the strategic level and ultimately applied to reporting against Australia's aid-related national and international commitments.

Climate change and disaster risk performance assessment in the Australian aid program



Source: Climate Change and Disaster Resilience Performance Assessment Note, DFAT 2017

It must also be acknowledged that stakeholders have reporting obligations beyond APCCAP both at the national, regional and global levels. For instance, NMSs are required to report to the Pacific Meteorological Council against the Pacific Islands Meteorological Strategy and all participating governments have obligations to report against commitments made under the United Nations Framework Convention on Climate Change.

Similarly, Pacific implementing partners will need to fulfil their M&E obligations to national governments and regional authorities. Principal of these is the reporting requirements for the Framework for Resilient Development in the Pacific and the key performance indicators developed to monitor the Oceans and Maritime Program of the Geosciences, Energy and Maritime Division of SPC to allow it to report progress towards achieving SDG Goal 14 to conserve and sustainably use oceans, seas and marine resources.

When the PAF is being reviewed at the pre-implementation workshop, every effort will be made to confirm common performance indicators that can be applied to assess COSPPac2 performance as well as fulfilling the reporting commitments Pacific partners have under other strategies and policy frameworks.

It needs also to be recognised that SPC has its own monitoring and evaluation unit which can support national government partners to improve their M&E capacity to meet the performance management requirements of national and regional governing bodies as well as COSPPac2 and APCCAP.

4.4.4 Late-term review

As with the initial phase of COSPPac, DFAT will commission an external review of COSPPac2.

Subject to funding availability from 2022, it is anticipated that the Australian Aid Program will continue to support the program noting the two-way value of meteorological, geodetic, meteorological and oceanographic data to inform action on climate change and disaster preparation and resilience both across the Pacific and Australia.

The timing towards the end of year three is suggested to allow some immediate adjustments in the final year of implementation to better position the program for transition to the next phase as well as informing deliberations on the focus, structure and approach to implementing a subsequent phase of support.

The review will allow for independent examination of operations and performance with a view to informing the design of the next phase of programming. APCCAP review and evaluation activities will also inform planning for a subsequent phase.

While detailed terms of reference will be agreed between the implementing partners at a time more proximate to the activity, the review will evaluate the program against the OECD/DAC evaluation criteria of:

- Effectiveness
- Impact
- Relevance
- Efficiency
- Sustainability

The review will:

- 1) provide a consolidated report of results and reflect on progress towards the achievement of anticipated end-of-phase outcomes;

- 2) assess program implementation processes including the quality of M&E and risk management and compliance expectations around gender equality, disability and other forms of social inclusiveness;
- 3) identify the program's successes and failures and explore evidence around the approaches utilised within the program to identify how aligned they have been with global standards and in the context of expectations of the countries in the Pacific region;
- 4) deepen knowledge and understanding of the assumptions, options and limits of the program and contribute to a comprehensive discussions and reflections around climate change programming in the Pacific;
- 5) determine, where practicable, the unit cost of the delivery models utilised within the program and assess efficiency relative to the technical and financial resources available; and
- 6) guide future program improvement, identify lessons from implementation that contributed to program success and pinpoint actions and approaches that did not contribute to outcome achievement as anticipated.

4.5 Risk Management

COSPPac2 will operate in a complex environment with many stakeholders often with different priorities and capacities across many countries. For this reason, the program will deploy robust risk assessment and proactive risk management to ensure that any potential impact of risks to operations and performance are identified quickly and mitigated or minimised proactively so that results and outcome achievement is optimised.

The high-level program risks can be described within two broad categories:

Key risks arising from the *implementation environment*:

- Pacific governments do not give sufficient priority to ensuring that climate change data informs policy development, sectoral planning and implementation.
- Pacific governments do not provide sufficient resources to sustain relevant national agency capacity to effectively partner with COSPPac2 and support the transition of services to full national and regional management where appropriate.
- Program resources are insufficient to adequately maintain the meteorological, oceanographic and geodetic systems and tools required to generate and store the necessary data.
- Uncoordinated donor and government activity results in duplication of effort, resource wastage and the application of conflicting approaches that undermine efforts to develop unified systems of climate information management.
- Pacific governments and regional organisations do not work cooperatively to ensure that needs are prioritised in a manner that ensures that COSPPac resources are expended in a manner that results in maximum benefit to Pacific Island communities.

Key risks arising for *program content and delivery*:

- A failure to engage effectively with APCCAP and the Australian bilateral aid program results in program development and implementation that is not properly coordinated or climate change informed.
- Coherence between the program components is weak resulting in poor resource utilisation and a failure to ensure that services and products are fully informed.
- Information, services and product development do not respond to the demands of end-users undermining their practical utility.
- Products are not crafted to ensure they are understandable and accessible to end-users. They fail to accommodate the separate information needs of men and women and do not account for the needs of groups with specialised needs such as the disabled.

- Capacity development approaches are not sufficiently customised for targeted Pacific partner agencies.
- Misdirection of funds to areas of activity that are not aligned to approved program activities, exposes the program to reputational damage and reduces the resources available to apply to activities that contribute to outcome achievement.
- Inadequate monitoring and evaluation plans fail to establish relevant baselines and data collection methodologies resulting in the program being unable to validate results in a manner that can demonstrate progress towards achieving agreed outcomes.

A more detailed risk register that identifies risks down to the project level, predicts impact and identifies treatments to mitigate or minimise that impact on program performance will be developed and updated as programming plans are finalised at the March 2018 pre-implementation workshop. A draft, partly populated register is included at [Annex 3](#) as a foundation for this exercise.

The risk register will be reviewed and updated as needed at least annually by the IPMG to ensure that it accurately reflects the current implementation environment.

The traffic light reporting system introduced in COSPPac1 provides an avenue for program component-level managers to reflect regularly on the risk environment and raise concerns about changes in the level of risk with the CCU where needed.

4.6 Environmental protection and safeguards

COSPPac2's aims to inform responses to climate change, to protect environmental assets, build resilience and help governments, communities and private sector operators make decisions that reduce the negative economic and social impacts associated with climate change, climate variability and disasters.

While COSPPac2 is unlikely to directly engage with end-users or be an active partner in implementing climate-change informed actions, the information and advice generated by the program will inform actions by others, particularly governments, that may have negative impacts on the environment, individuals and communities at a localised level. For instance, the program may generate climate information and advice that informs decisions to relocate infrastructure and communities as a consequence of rising sea levels or changes in rainfall distribution.

Australia's aid policy requires programs to actively manage risk by mitigating adverse environmental and social impacts in the aid program through the application of mandatory safeguards policies²¹.

The environmental and safeguards policies recognise that development activities that may promote economic growth or otherwise advance the public interest may damage the local environment or adversely affect people through loss of land or residences, reduced access to services or through disruption to livelihoods.

These impacts, vary in their extent and severity, depending upon the nature and location of the development activity that causes them. Where impacts are minor or temporary, affected people may

²¹ DFAT - Displacement and Resettlement Policy - <http://dfat.gov.au/aboutus/publications/Pages/displacement-and-resettlement-of-people-in-development-activities.aspx>
 DFAT Environment Protection Policy - <http://dfat.gov.au/aboutus/publications/Pages/environment-protection-policy-aid-program.aspx>

need little assistance in adapting to changes. Where lives are severely disrupted through physical relocation or loss of livelihoods however, more assistance will be necessary to assist in resettlement.

In considering the impact of decisions informed by COSPPac2, it is important that decision makers consider the variable impact that proposed actions can have on different groups.

Safeguards policy recognises that levels of vulnerability vary and that women and other groups disadvantaged by characteristics such as extreme poverty, ethnic minority status or disability are often more severely affected than others. In areas characterised by significant gender discrimination or other drivers of inequity, special planning measures may be necessary to ensure that the specific impacts on livelihoods and living standards are identified, and that all affected people, have access to appropriate means of assistance to properly ameliorate the negative impact of change.

While recognising that neither COSPPac2 nor its implementing and delivery partners are likely to be involved in actions that may have environmental or displacement/resettlement consequences, nevertheless the program will work with its local delivery partners to ensure that they:

- have an awareness that information and advice provided could trigger actions by other parties that may have negative consequences for the environment, individuals, local communities and other affected groups;
- promote awareness in decision makers of the need to establish consultative mechanisms that allow affected groups to participate meaningfully in the development of strategies to minimise any negative consequences; and
- ensure that, where feasible, they provide information that might help decision makers to plan actions that avoid and otherwise minimise environmental damage and physical and economic displacement by considering all feasible alternative actions.

Noting that the implementation of environmental protection and safeguards policies is a requirement for the entire APCCAP, COSPPac2 will work closely with the APCCAP Support Unit to develop a common approach to safeguards for environment, displacement and resettlement that is appropriate to program functions and responsibility. This could include facilitating connections with people and organisations with expertise in relevant areas to help shape the way in which implementing partners engage with the issues.

In relation to COSPPac2 activity that might interact with other Australian bilateral or other donor-supported programs, COSPPac2 will seek wherever possible, to confirm that relevant environmental protection and safeguards measures are in place in these programs.

4.7 Implementation Planning

Early implementation planning for Phase 2 will be shaped by the following objectives:

- the need for timely agreement negotiation between DFAT, the Bureau and GA to ensure a smooth transition from Phase 1 to Phase 2 operations;
- the establishment of implementing partner agreements with SPC and SPREP that provide clarity around anticipated program delivery and performance expectations;
- the establishment of robust coordination arrangements between COSPPac2, APCCAP and DFAT Pacific Posts; and
- the development of a performance management system that can produce outcome-focussed performance reporting.

4.7.1 Pre/early implementation steps

- *Delegate approval* of this design and whole-of-program funding.
- *Negotiation and approval* of the funding agreement between the Bureau and DFAT and release of the first funding tranche.
- *Negotiation and approval* of funding agreements between the Bureau, GA, SPREP and SPC.
- *COSPPac2 pre-implementation workshop* using this document and its performance and risk annexes and the APCCAP program component designs as a base. This workshop will allow implementing partners to develop comprehensive and mutually agreed performance and risk management frameworks to guide future implementation.
- *Annual Plan, budget development and approval* – project managers to submit their first annual plans and budgets for approval by the IPMG.
- *Budget release for GNSS upgrade* – prior to end 2017/18 financial year, DFAT will release a one-off, \$1.6 million allocation to Bureau for transfer to GA to fund the GNSS upgrade
- *Update of the traffic light reporting system* – to reflect approved annual plans and the PAF.

4.7.2 Ongoing implementation activities

While project activities will be detailed in approved annual plans, there are number of regular key administrative activities that will be undertaken over the four years of the program. Others will emerge as the program progresses but the following can be outlined now:

- *Biannual traffic light reporting* – Project managers will report on progress against annual plans and review risks every six months to inform program progress updates.
- *Biannual program progress updates* - the IPMG will meet twice each year to report on performance over the preceding six months, share implementation experience and consider any requirement to adjust programming and resource allocations in light of changes in the operational environment.
- *Steering Committee meeting* – the SC will meet in about April/May each year to review performance, consider annual plans for the coming year and provide strategic insights into the operational environment and the national priorities driving the demand for climate information services across the Pacific.
- *Annual reporting* - Program component managers will prepare and submit reporting against agreed monitoring and evaluation plans and the CCU will compile whole-of-program reporting against the agreed Program Assessment Framework for consideration by the IPMG and Steering Committee.
- *AQC and APPR input* – drawing from annual reporting, DFAT and APCCAP will prepare climate change inputs for the Aid Quality Check (AQC) and Annual Program Performance Review (APPR).
- *Late-term external program review* - commencing around quarter three of year three to inform Phase 3 Program Design.
- *Phase 3 Program Design* – DFAT and APCCAP will commission a design team to prepare a third phase of COSPPac to commence from July 2022

A draft implementation plan is included at [Annex 5](#). The plan will be updated to reflect agreed actions and confirmed implementation arrangements and timing following the March 2018 pre-implementation workshop.

4.8 Coordination and cooperation with other climate change relevant activity

Two primary objectives of the overarching APCCAP are to ensure that Australian aid investments in the Pacific are climate informed and that Australian-supported climate change information is relevant and influential.

While COSPPac2 will support its implementing and delivery partners to fulfil their meteorological, oceanographic, geodetic and climatic information service obligations, its capacity to contribute information and advice that enhances the effectiveness of other efforts will be an important indicator of effectiveness.

In relation to wider aid program cooperation and coordination:

- COSPPac2 can value-add to other aid investments ensuring that climate adaptation and resilience is mainstreamed and contributes information and advice that supports a multi-hazards approach to disaster risk reduction, preparedness and planning and humanitarian operations.
- Bilateral-funded aid activities will provide an important avenue for ensuring that COSPPac2 services and products are effectively targeted and meet the needs of particular Pacific Island communities and sectoral groups.
- APCCAP could potentially be a source of advice and support that contributes to the quality of services and products and enhances the effectiveness of their delivery by:
 - supporting better program alignment and coherence by drawing on the more comprehensive mapping undertaken by the APCCAP Support Unit of other climate change-related activity occurring across the Pacific;
 - helping ensure services are aligned with, and supportive, of APCCAP's climate governance for resilience support and reinforces good governance practice;
 - drawing on APCCAP's expertise and its connection to other Australian aid investments such as Pacific Women to ensure that gender and social inclusion requirements are properly addressed in COSPPac2 programming;
 - drawing from, and contributing to, the support and demonstration of innovative climate change-related actions and partnerships; and
 - identifying and facilitating links with broader development programming such as Australia Awards or further GCF proposals developed for the Pacific region.

Two principal avenues of engagement will facilitate this broader coordination:

1. The Steering Committee meetings offer an avenue for networking with broader range of private, public and community sector groups and for engaging with a wider range of development and governance agendas across the Pacific.
2. The APCCAP Support Unit will act as a coordinating hub through which COSPPac2 can engage with other APCCAP-supported activities and wider Australian bilateral aid investments.

4.9 Gender equality and social inclusion

Gender equality is about equal opportunities, rights and responsibilities for women and men and girls and boys. Gender inequality and other forms of social exclusion arise as a consequence of unequal power distribution between genders and disadvantaged social groups, exacerbated by discrimination, weaknesses in laws, policies and institutions and cultural and social practices that normalise inequity.

Pacific Island communities are highly vulnerable to climate change. However not everyone is affected equally. Societies, communities, and households are not homogeneous. Different groups of people have different vulnerabilities, interests, priorities, levels of power and capacities to access critical resources for adaptation and mitigation of the impact of climate change on their lives.

Women and men have different roles and responsibilities within their families and communities and contribute different skills and knowledge to efforts to adapt and respond to the influence of weather and climate on social, cultural and livelihood-related activity. However, barriers to the full inclusion

of women in decision-making processes often mean that their needs are overlooked and their ability to contribute and expand their skills and expertise to cope with change is often constrained.

As Pacific Island communities are not all the same, women and men are not homogenous groups, factors such as age, socio-economic status, ethnicity or disabilities also affect the level of vulnerability and access to power, resources and decision-making processes.

Reprising the observations outlined in Section 2.4.5, a situational analysis of gender and climate change in the Pacific commissioned by DFAT concluded that over half of the aid to climate change fails to take into account women's specific needs and contributions. The analysis proposed that more effort is needed to ensure climate change activities are designed for the equal benefit of both women and men and contribute to the advancement of gender equality from the outset²².

Climate change adaptation and mitigation is taking place in a context of endemic gender inequality across the Pacific but the discourse and practice around climate change has been slow to recognise its social dimensions.

Gendered characteristics of particular note in the Pacific include:

- women's participation in economic activity is much lower than men including in the formal labour market where women account for less than one third of the total number formally employed;
- men dominate high positions within government, control the majority of business and dominate the political process with women holding 6% of seats in Pacific Island parliaments 2016 against a global average of 20%; and
- there is a high level of exploitation of women across the Pacific including economic exploitation and gender-based violence²³.

Beyond the demands of gender equality, social inclusiveness requires the needs of all disadvantaged groups, including those with a disability, to be considered when developing and implementing climate change policy to ensure that they are not excluded from strategies to build resilience. Social inclusiveness requires the development and deployment of practices and operational policies designed to identify and remove bureaucratic, legal, physical, communication and attitudinal barriers that inhibit that ability of an individual or group from fully participating in, and benefiting from, program activity.

For COSPPac2 to ensure that its deliver partners produce inclusive, fit-for-purpose, climate-related services and products, it must structure its interactions with implementing partners to ensure that the program supports the development and application of engagement strategies and processes that recognise and accommodate the heterogeneous nature of end-users. This will include ensuring that delivery partners:

- approach program planning and implementation in a manner that deliberately and consistently identifies and considers the needs of women and disadvantaged groups;
- structure engagement in a manner that allows women and disadvantaged groups to participate in decision-making processes and influence programming decisions;
- develop products and services that properly address the different and particular needs men, women and disadvantaged groups; and
- deploys data collection processes in monitoring systems that disaggregate data by gender and maximises disaggregation by other categories of disadvantage (particularly people with

²² Gender and Climate Change in the Pacific: A Situational Analysis, DFAT February 2017

²³ *ibid* Gender and Climate Change

disability) to allow measurement and analysis of the impact of COSPPac2 operations on these groups.

Acknowledging that end-user interactions are largely the remit of COSPPac2's delivery partners, the Australian and regional implementing partners will work with them to raise the level of awareness of the need to ensure that services and products are developed in a gender-sensitive and socially inclusive manner. This will require COSPPac2 projects to help delivery partners to develop engagement strategies that:

- properly identify the implications of proposed climate information services for women, men and disadvantaged groups;
- provide avenues for all users to influence the design of products and services;
- ensure that services provide for end-user evaluation to confirm that the needs of **all** users' are being properly addressed; and
- disaggregate user data in user registers and seek to draw out and separately record the views of women, men and disadvantaged groups when eliciting feedback.

Recognising the need for the staffing profile of agencies to reflect the make-up of the communities they serve, COSPPac2 national partners will proactively explore in cooperation with the SPC Gender Unit ways to strengthen partner human resource management practices and systems and to support diversity in their staff establishments at all administrative and management levels.

The overarching APCCAP framework requires all supported activities to reflect high-quality gender and social inclusive practices that ensure that the interests of women, people with disability and other marginalised groups are reflected in climate change action proposals and financing plans. To that end, APCCAP includes a component designed to leverage and link up with existing expertise available through SPC, *Pacific Women* and other groups, including civil society organisations, to develop context-specific resources to support this integration.

The APCCAP support unit will be responsible for ensuring gender equality and social inclusion are integrated through all activities supported by Australian Aid in the Pacific and will review COSPPac2 activities and performance through that lens.

4.10 Community Engagement and Traditional Knowledge

As prescribed in Outcome 4, the successful application of the services and products supported by COSPPac2 is dependent on their relevance to the needs of end-users and that they are produced and disseminated in a manner that reflects the requirements of the wide variety of constituencies that they must serve.

As summarised in the stakeholder map in Section 4.1, COSPPac2 deliverables must accommodate the needs, and be accessible to, a wide range of users from government agencies and multi-national businesses to isolated village communities. The way in which an illiterate subsistence farmer or a fisherman might access and process information will be very different from an engineer constructing a road or hydro dam, or a health ministry official revising a malaria treatment protocol. This differential is overlaid by the diversity of cultures that exist across the Pacific.

This diversity requires that products, particularly those targeted at the community level or which focus on livelihood practice, may need at times to leverage traditional knowledge, employ local language forms and identify appropriate dissemination/communication mechanisms to ensure comprehension, secure legitimacy and maximise accessibility.

The traditional knowledge component of COSPPac1, developed technical expertise within SPREP to shape communications in culturally appropriate ways and established a database of traditional knowledge indicators. In Phase 2, support will be provided to SPREP to continue collecting data against traditional knowledge indicators and maintain connections with a network of traditional knowledge custodians reflective of the Pacific's cultural diversity.

It must be recognised that while the application of traditional knowledge is a valuable tool for maximising user utility and acceptance of products and services, it must be applied in a manner that does not undermine broader gender and social inclusion objectives.

These resources, together with engagement with the climate and resilience decision support services component of APCCAP where appropriate, are designed to ensure that that services and products are craft for maximum accessibility for end users.

Strategies for improving the utility of deliverables will include:

- encouraging SPREP and SPC Communications Officers to maintain a network of people and organisations across the Pacific that have expertise in areas of traditional and culturally-appropriate knowledge; and
- establishing procedures and processes that ensure that communication requirements (including the application of appropriate traditional knowledge, language and cultural forms) inform product and service development and dissemination strategies.

Recognising that these issues are likely to be a common need across APCCAP, COSPPac2 will engage with APCCAP Support Unit and both contribute to and leverage off work focussed on improving the quality of communications.

5. Annexes

1. TORs for Program management elements – Implementing Partner Management Group, Steering Committee
2. Draft Performance Assessment Framework
3. Draft Risk Register
4. Project budgets, staffing and organisational structures
5. Draft Implementation Plan