



Climate Change and Disaster Resilience Strategy

Approved by SIIP Steering Committee September 2022



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Executive Summary

Solomon Islands is exposed to a range of hydro-meteorological and geophysical hazards and is ranked second in terms of disaster risk globally (WorldRiskReport, 2021). Like many small island countries, it is often viewed as being in 'constant recovery mode' due to the high exposure and vulnerability to natural disasters. Climate change is projected to exacerbate these hazards and further contribute to the high vulnerability status of the country.

The Australia Pacific Climate Partnership (APCP) calculated that Solomon Islands is expected to incur average annual losses of economic infrastructure (buildings, infrastructure and major crops) of around SBD145 million (USD20 million) due to tropical cyclones and earthquakes alone (APCPSU, 2021). Tropical cyclones result in average annual losses of USD5.8 million, of which 1.3% is attributed to infrastructure losses. Earthquakes and tsunamis result in average annual losses of USD14.7 million, of which 15.5% is attributed to infrastructure losses. Earthquake loss exceeding USD270 million, which is roughly equivalent to 40% of Solomon Islands Gross Domestic Product (GDP), is expected to occur, on average, once every 100 years.

The Climate Change and Disaster Resilience (CCDR) Strategy document is presented in four sections:

- Section 1 provides a general overview of the Solomon Islands Infrastructure Program (SIIP);
- Section 2 highlights the Solomon Islands context and highlights the key constraints on CCDR mainstreaming for infrastructure delivery;
- Section 3 details the SIIP CCDR objectives and strategy; and
- Section 4 outlines the implementation plan.

Four objectives underpin the CCDR Strategy:

1. SIIP demonstrates effective mainstreaming of CCDR through all activities.
2. SIIP supports its partners to integrate and implement CCDR through policy, planning and regulatory frameworks.
3. Stakeholders planning and delivering physical infrastructure have improved capability and resources to mainstream CCDR in their projects.
4. Stakeholders planning and delivering physical infrastructure have improved access to, and processes for, the collection of data on climate and disaster-related hazards and risks.

This CCDR Strategy is centred around the infrastructure life-cycle, noting the greatest opportunity to achieve CCDR outcomes is at the time an infrastructure need is identified (even before a proposal is conceived), and the level of influence and impact on the project diminishes as a proposal proceeds. Hence, this strategy should be read in conjunction with the sectoral analyses prepared by the SIIP team.

It will support the implementation of CCDR management for infrastructure planning and delivery by the Solomon Islands Government and other stakeholders by assisting with policy development, the preparation of guidelines and other mechanisms for operationalising CCDR policies and plans, and capacity building and knowledge sharing.

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Acronyms and Abbreviations

ACN	Activity Concept Note
ADB	Asian Development Bank
AHC	Australian High Commission
AIFFP	Australian Infrastructure Financing Facility for the Pacific
APCP	Australian Pacific Climate Partnership
APCPSU	Australia Pacific Climate Partnership Support Unit
AS	Australian Standard
CCD	Climate Change Division
CCDR	Climate Change and Disaster Resilience
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DFAT	Department of Foreign Affairs and Trade
DRM	Disaster risk management
DRR	Disaster risk reduction
ECD	Environment and Conservation Division
EIA	Environmental impact assessment
EOPO	End of Program Outcomes
FRDP	Framework for Resilient Development in the Pacific
GDP	Gross Domestic Product
GEDSI	Gender Equality, Disability and Social Inclusion
GHG	Greenhouse Gas
HAG	Humanitarian Advisory Group
ICT	Information and Communications Technology
IO	Intermediate Outcome
IPCC	Intergovernmental Panel on Climate Change
ISO	International Standards Organisation
MDB	Multilateral Development Banks
MDPAC	Ministry of Development Planning and Aid Coordination (now MNPDC)
MECDM	Ministry of Environment, Climate Change and Disaster Management and Meteorology
MECM	Ministry of Environment, Conservation and Meteorology (now part of MECDM)
MEL	Monitoring, Evaluation and Learning
MELP	Monitoring, Evaluation and Learning Plan
MID	Ministry of Infrastructure Development
MNPDC	Ministry of National Planning and Development Coordination
MOFT	Ministry of Finance and Treasury
MoU	Memorandum of Understanding

NAPA	National Adaptation Programmes of Action
NASA	National Atmospheric and Space Administration
NCCP	National Climate Change Policy
NDC	National Disaster Committee
NDCs	Nationally Determined Contributions (under the <i>Paris Agreement</i>)
NDMO	National Disaster Management Organisation
N-DM Plan	National Disaster Management Plan
NDOC	National Disaster Operations Committee
NDS	National Development Strategy
NIIP	National Infrastructure Investment Plan
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PDC	Provincial Disaster Committees
PRIF	Pacific Regional Infrastructure Forum
PRP	Pacific Resilience Partnership
RCC	Recovery Coordination Committee
SAMOA Pathway	Small Island Developing States Accelerated Modalities of Action
SDGs	Sustainable Development Goals
SIDs	Small Island Developing States
SIG	Solomon Islands Government
SIIP	Solomon Islands Infrastructure Program
SIMS	Solomon Islands Meteorological Service
SINSO	Solomon Islands National Statistics Office
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
UN	United Nations
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations Office for Disaster Risk Reduction
USP	University of the South Pacific
VDC	Village Disaster Committee

Key Terms

Mitigation	The reduction of greenhouse gasses released into the atmosphere, including through activities that remove or reduce emissions (source: DFAT, 2019).
Adaptation to climate change	Process of adjustment to accommodate the actual or expected climate and its effects.
Adaptive capacity	Ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences.
Adaptation pathway	Describes a sequence of actions (measures, modifications or other investments) that are implemented once a certain trigger level representing a change in conditions has been reached.
Climate	Statistical description of weather in terms of the average, range and variability of weather elements (e.g. Precipitation, air temperature, etc.) over a period of time.
Climate change	Change in climate that persists for an extended period, typically decades or longer.
Climate change adaptation	The process of adjustment to actual or expected climate change and its effects.
Climate driver	A cause or contributor to climate change.
Climate projection	Simulated response of the climate system to a future scenario of emission or concentration of greenhouse gases (GHGs) and aerosols, generally derived using climate models.
Climate variability	Refers to variations in the mean state of climate on all temporal and spatial scales beyond that of individual events (e.g. Extended droughts, floods, El Niño-southern oscillation).
Consequence	Outcome of a disaster or climate-related event affecting the objectives. Consequences are most likely adverse impacts upon vulnerable assets, operations or systems.
Design life	Of an asset; the theoretical period that an asset is expected to work within its specified parameters such as safety, usage, wear and tear. It is not necessarily the same as the actual service life.
Disaster	In this context refers to natural disasters; major adverse event resulting from natural processes such as extreme weather events (e.g. cyclones, droughts, floods, wildfires) and geophysical hazards (e.g. volcanic eruptions, landslide).
Disaster risk reduction (DRR)	Is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development.
Exposure	Presence of people, livelihoods, species or ecosystems, environmental functions, services, resources, infrastructure or economic, social or cultural assets in places that could be affected by a hazard.
Feasibility	Refers to the potential for an adaptation option to be implemented.
Hazard	Potential source of harm. A climate hazard refers to climate-related physical event or trends or their physical impacts.

Likelihood	The change of a consequence or impact occurring, generally described in terms of probability or frequency of occurrence, and that can be expressed qualitatively or quantitatively.
Maladaptation	Refers to actions that may lead to increased risk of adverse climate-related outcomes, including via increased GHG emissions, increased or shifted vulnerability to climate change, more inequitable outcomes, or diminished welfare, now or in the future. Most often, maladaptation is an unintended consequence.
Remaining useful life	The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining useful life provides an estimate of useful life.
Residual risk	The remaining risk after all efforts have been made to eliminate, minimise and/or mitigate risks through identifying an implementing actions and activities. An 'acceptable' level of residual risk depends on the appetite for risk of the risk taker.
Resilience	The capacity of social, economic and ecosystems to cope with a hazardous event (e.g. A natural disaster) or trend or disturbance, responding or reorganising in ways that maintain their essential function, identify and structure (or biodiversity in the case of ecosystems) while also maintaining the capacity for adaptation, learning and transformation. It requires diversity and the ability to adapt when external conditions change, and to respond to new opportunities.
Risk	Effect of uncertainty. Risk events are events that may compromise the delivery of the organisation's strategic objectives. Risk is a function of the likelihood and consequences of a hazard being realised.
Vulnerability	Propensity or predisposition to be adversely affected. Vulnerability to the impacts of climate change is a function of exposure to climate conditions, sensitivity to those conditions, and the capacity to adapt to the changes.

Most of these terms are sourced from ISO14091: Adaptation to climate change – guidelines on vulnerability, impacts and risk assessment, Intergovernmental Panel on Climate Change (IPCC) (2022) and IPWEA (2018).

1 Program Overview

The Solomon Islands Infrastructure Program (SIIP) is a ten-year investment with a goal to *improve the quality and accessibility of economic infrastructure to contribute to broad based, inclusive and sustainable economic growth in Solomon Islands*.

SIIP will focus on economic infrastructure, including transport (land, sea and air), information and communications technology (ICT), electricity, water and sanitation, and infrastructure that supports rural development, to drive growth and help diversify the economy.

To this end, SIIP aims to achieve the following two outcomes by 2031:

Outcome 1 – SIG and industry have enhanced sustainable capacities to plan, manage, finance, construct and maintain critical economic infrastructure.

Outcome 2 – The program will have left a legacy of high profile, resilient and accessible infrastructure assets in a range of sectors across the country that support inclusive economic growth.

To achieve these long-term outcomes, SIIP's Program Logic (**Annex 1**) theorises that the following intermediate outcomes need to be achieved:

- Intermediate Outcome 1 (IO1) – Appropriate¹ and effective infrastructure policies, plans, regulations, and safeguards are developed and implemented.
- Intermediate Outcome 2 (IO2) – Government, local industry, and community have enhanced knowledge, partnerships, systems and capacity to build quality, life-cycle informed, and inclusive infrastructure.
- Intermediate Outcome 3 (IO3) – Solomon Islands has access to increased financial resources for inclusive economic infrastructure development.
- Intermediate Outcome 4 (IO4) – High priority and high quality, inclusive, 'demonstration effect' infrastructure is delivered on time and on budget.

Drawing on the lessons learnt from Australia's previous investments in infrastructure, five principles guide the design and implementation of SIIP activities, including construction projects funded or prepared by the Program Hub.

Five guiding principles form the foundation of the program and drive decision-making:

- **Alignment** with Solomon Islands' and Australian development objectives, with support provided in a way that does not displace other sources of public or private infrastructure investment.
- **Inclusivity:** all activities will integrate considerations of gender, disability, and geographical spread (rural/provincial).
- **Strengthening Climate Change and Disaster Resilience (CCDR)** through integrated approaches to infrastructure planning, design and delivery, including through life-cycle cost assessments.
- **Local Content:** supporting infrastructure delivery that optimises returns for the local economy, strengthens local industry, improves industry practices, and enhances workforce capacity and participation.
- **Safety and Quality:** Strengthening policies and practices, and providing tangible examples of quality construction, building standards, safe-use of infrastructure, environmental and social safeguards, and whole-of-life maintenance.

SIIP's Design Document prepared by the Australian Government Department of Foreign Affairs and Trade (DFAT) identifies the following considerations for CCDR:

¹ Defined as including the integration of climate change and disaster resilience, environmental management and gender equality and social inclusion.

- Low carbon options (e.g. renewable energy and low carbon materials) should be considered where possible to support Solomon Islands to meet their Nationally Determined Contributions (NDCs) under the *Paris Agreement*.
- Infrastructure must adapt to the impacts of disasters and climate change (e.g. by incorporating resilience into the design and ensuring ongoing serviceability under climate change conditions).
- Activities delivered under the Program should reduce disaster risks and support response and recovery from disasters (e.g. supporting evacuation routes).
- The Program should build community resilience to the impacts of climate change and disasters (e.g. by ensuring access to markets, energy, water and food security).

1.1 SIIP Hub

SIIP is implemented by DT Global which resources a flexible and responsive technical team (SIIP Hub) that delivers a range of functions, including:

- Managing relationships and partnerships, including providing secretariat functions for the Steering Committee;
- Undertaking project and activity screening, review, selection and assessment services;
- Providing policy and technical advice;
- Capacity building and local content development;
- Resource and knowledge management;
- Delivering infrastructure;
- Governance and management;
- Performance and risk management/aid quality;
- Providing for gender equality, disability and social inclusion (GEDSI); and
- Integrating CCDR.

1.2 Purpose of the CCDR Strategy

SIIP will enable the Solomon Islands Government (SIG) to plan, deliver and maintain infrastructure that is resilient to the impacts of climate change and natural disasters. SIIP will do this by supporting SIG to integrate CCDR into every stage of the infrastructure life-cycle. SIIP's CCDR Strategy will outline how the Program will do this. It will be complemented by a CCDR 'toolkit' consisting of a set of guidelines, technical standards and procedures for directly delivered and co-financed projects that can be used to support good practice for CCDR.

The CCDR Strategy interfaces with the following documents:

- SIIP Mainstreaming Our Guiding Principles in Operations
- SIIP Monitoring, Evaluation and Learning Plan
- SIIP Capacity Development Strategy
- SIIP Local Content Policy
- SIIP GEDSI Strategy
- SIIP Environmental and Social Safeguards Framework
- SIIP Asset Management Policy and Strategy.

2 Solomon Islands Context

Solomon Islands is ranked second in the world with respect to risk from natural disasters (WorldRiskReport 2021). It is exposed to a range of natural hazards including earthquakes, volcanic eruptions, tsunamis, landslides, tropical cyclones (TCs), droughts, floods and coastal hazards such as storm surges. Climate change is modifying weather patterns, driving sea level and temperature rises, ocean acidification and coral reef loss. In order to achieve the objective of sustained and inclusive economic growth, SIG has identified specific actions under its National Development Strategy (NDS; Ministry of Development Planning and Aid Coordination (MDPAC), 2016) to improve disaster and climate risk management, adaptation and environmental management and gives priority to improving the resilience of infrastructure in the National Adaptation Programmes of Action (NAPA); Ministry of Environment, Conservation and Meteorology (MECM), 2008 (refer Section 2.2).

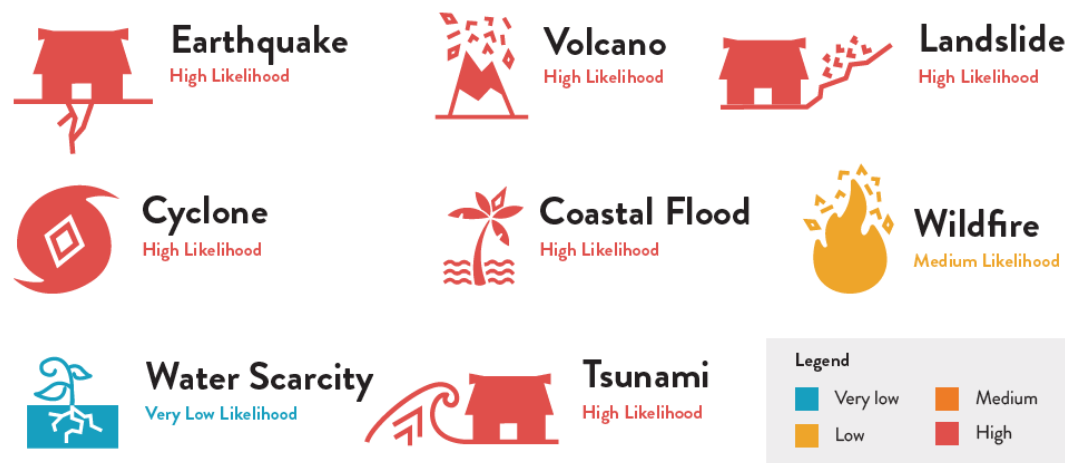
Under the *Paris Agreement*, the SIG made unconditional and conditional commitments in its updated Nationally Determined Contribution (2021) to achieve net zero Greenhouse Gas (GHG) emissions by 2050. Achieving this ambitious target primarily requires significant investment in renewable energy and climate resilient infrastructure.

This section provides context for Solomon Islands. Further information can be found in Annex 2, which provides further detail on the key agreements, guidelines and standards of relevance to CCDR.

2.1 Exposure and vulnerability to climate change and disaster risks

The Solomon Islands risk profile summary prepared by the Australia Pacific Climate Partnership Support Unit (APCPSU, 2021) summarises the level of risk facing Solomon Islands, and potential impacts of, natural disasters and climate change. The likelihood of different natural hazards (a category of sudden onset hazard) impacting Solomon Islands is illustrated in Figure 2-1.

Figure 2-1 Hazard likelihood (source: APCPSU, 2021)



The current demographic trends and state of economic development in the Solomon Islands contribute to its vulnerability to extreme climate and geological hazards. The population has increased by 30% from 2009 to 2019 resulting in an increased population density (Solomon Islands National Statistics Office (SINSO), 2019). This trend is expected to continue, putting more pressure on resources and access to basic services, especially for the more than 80% of the population that lives in the rural areas. The formal economy is narrow, driven largely by the primary sectors such as forestry, agriculture and fisheries. As experienced in the past (e.g. 1986 Cyclone Namu, 2007 Tsunami), the economy is vulnerable to external shocks such as natural disasters, world economic crises and other external factors (e.g. COVID pandemic). Economic impacts from extreme climate and geological hazards are substantial.

The APCP estimates the current total average annual economic losses from natural disasters in Solomon Islands to be USD79 million, representing 8.69% of Gross Domestic Product (GDP; APCPSU, 2021). A 2015

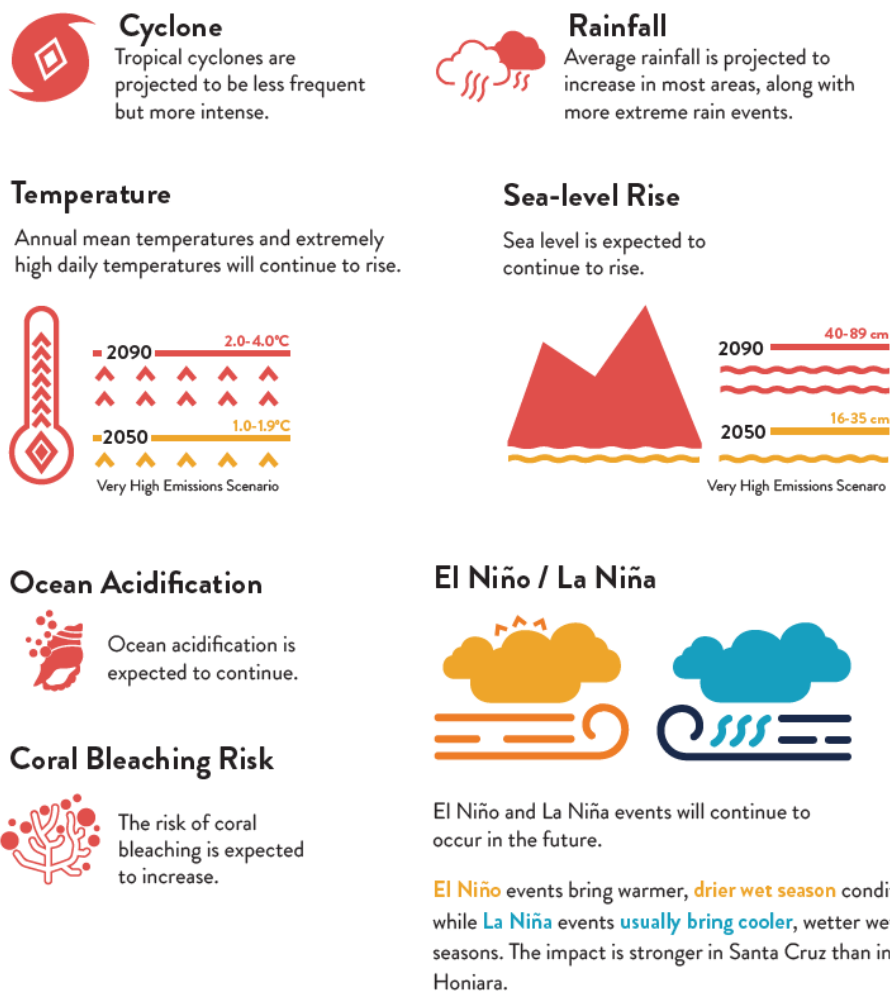
review by Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) of the economic impact of natural disasters estimated that, over the long-term, earthquakes and TCs could result in average annual losses of SBD145 million (USD20 million; PCRAFI; 2015). Considering direct losses of buildings, infrastructure assets and major crops, PCRAFI estimates that:

- TCs result in average annual losses of USD5.8 million, of which 1.3% is attributed to infrastructure losses
- earthquakes and tsunamis result in average annual losses of USD14.7 million, of which 15.5% is attributed to infrastructure losses
- an earthquake loss exceeding USD270 million, which is roughly equivalent to 40% of Solomon Islands GDP, is expected to occur, on average, once every 100 years.

It is reasonable to anticipate that these economic losses would increase into the future under climate change conditions, with implications for infrastructure service delivery that supports the economy, public health and safety, livelihoods and wellbeing. This is an important consideration for managing the long-term sustainability of an infrastructure asset.

Climate change projections for Solomon Islands are summarised in Figure 2-2. The level of confidence in these projections is variable; however, if these projections are realised, they will increase the level of risk from natural and climate-related hazards in Solomon Islands.

Figure 2-2 Climate change projections (source: APCPSU, 2021)



Some impacts of climate change are already being felt, with an average annual sea level rise of 8 mm since 1993, which is higher than global projections (National Atmospheric and Space Administration (NASA), 2022; refer Figure 2-3).

Extreme rainfall events throughout the country result in damage to critical infrastructure. For instance, the highest rainfall (251.8mm over 24 hours) recorded for Honiara since records began in the 1950s was on 30 January 2009. Several bridges to the west of Honiara were damaged and later rebuilt with CCDR considerations. This record was later broken on 4 April 2014, with a rainfall of 317.6 mm over 24 hrs. This event resulted in loss of lives and infrastructure (including the old Mataniko bridge) along the Mataniko river, Central Honiara (Solomon Islands Meteorological Services (SIMS), 2022; refer Figure 2-4).

Figure 2-3 Observed Sea level rise since 1993 – Honiara (source: NASA, 2022)

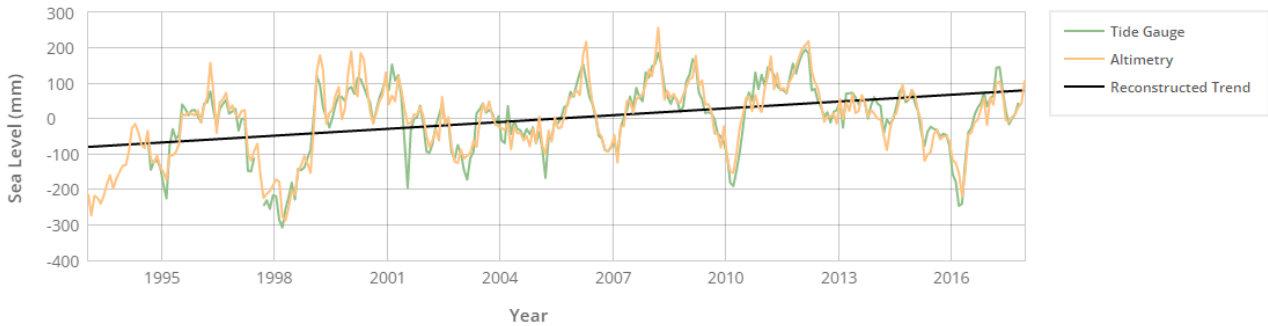
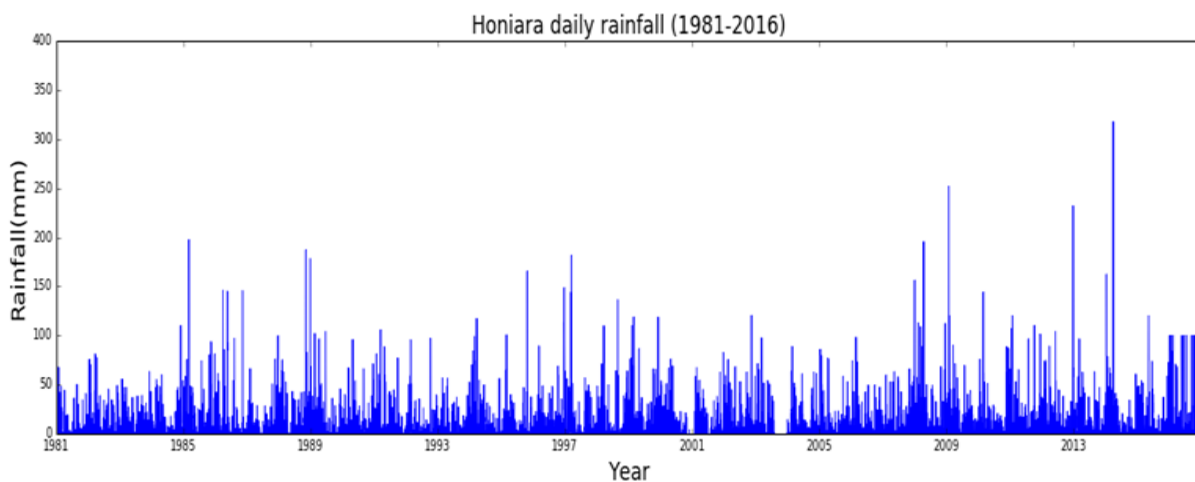


Figure 2-4 Observed rainfall 1981-2016 - Honiara (source: SIMS, 2022)



More detailed summaries of the potential climate change projections have been developed by the APCP in partnership with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Secretariate of the Pacific Regional Environmental Program (SPREP) under the ‘NextGen’ Projections project. This includes a summary of current and future climate hazards that affect the Solomon Islands (CSIRO and SPREP, 2021).

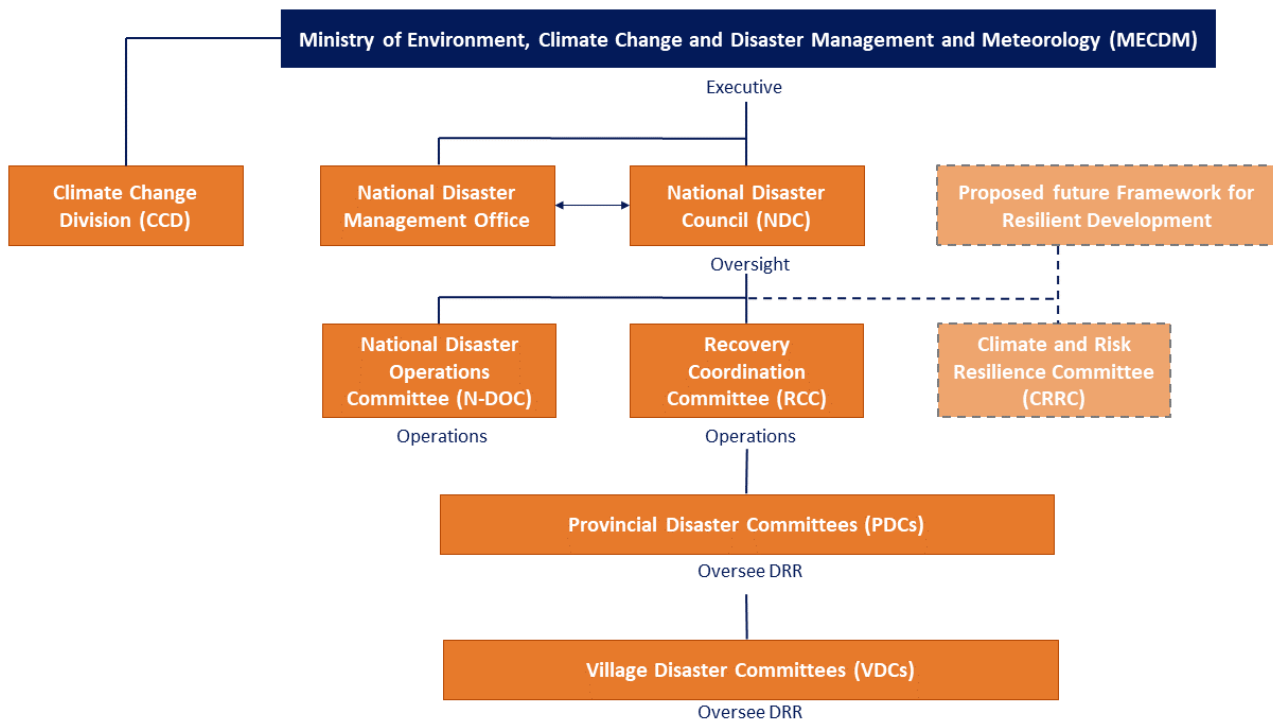
2.2 CCDR Governance in Solomon Islands

The Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM) is responsible for sustainable environmental management, climate change adaptation and mitigation, disaster risk management, and meteorological services for Solomon Islands (refer Figure 2-5 **Error! Reference source not found.**). The Ministry is organised into four technical divisions:

- Climate Change Division (CCD) - oversees the implementation of the climate change policy and monitors Solomon Islands vulnerability to climate change, mobilises resources for adaptation and mitigation, manages information, and is the key SIG interface with the United Nations Framework Convention on Climate Change (UNFCCC).

- **Environment and Conservation Division (ECD)** – administers the *Environment Act 1998* and is responsible for protection, conservation and sustainable management of the use of the environment and natural resources.
- **Meteorological Services Division** – the Solomon Islands Meteorological Service (SIMS) was established under the *Meteorology Act 1985* and is responsible for the provision of meteorological services to support economic development and resilient communities. SIMS functions and responsibilities include:
 - developing and implementing a national framework for climate and ocean services,
 - operation of several Met Stations, Automatic Weather Stations and Automatic Rainfall gauges,
 - weather forecast and information for aviation, marine and the general public, and
 - multi-hazard early warning systems and research activities on weather and climate.
- **National Disaster Management Office (NDMO)** - responsible for the coordination, development and implementation of disaster risk management (DRM) in Solomon Islands. This includes:
 - developing policy, coordinating, supporting and monitoring planning and arrangements for DRM at the sector, provincial and community level,
 - overseeing engagement of non-governmental organisations (NGOs) and partners,
 - coordinating and managing the national response to and recovery from disaster events,
 - establishing and maintaining databases for DRM information, including hazard and vulnerability maps, planning documents and disaster information.
- The NDMO is the Secretariat for the **National Disaster Council (NDC)**, established under the *National Disaster Council Act 1989*. It is responsible for committing resources and prioritising disaster preparedness and response. It is also responsible for the overview of disaster events and the management of international, regional and bilateral support arrangements for Disaster Risk Management (DRM).
- The NDC includes the **National Disaster Operations Committee (NDOC)** and the **Recovery Coordination Committee (RCC)**. The latter is responsible for developing funding arrangements for disaster recovery and rehabilitation for cabinet approval.
- **Provincial Disaster Committees (PDCs)** and sub-committees oversee disaster risk reduction at the provisional/municipal level, and village/ward committees are also in place.
- **Climate Change Steering Committees** have recently been established in each province but are not operational.
- Provincial Climate and Risk Resilience Committees have also been proposed under the **Framework for Resilient Development** in Solomon Islands.
- The National Climate Change Policy (NCCP) calls for a **National Climate Change Council and Climate Change Working Group**; however, the National Climate Change Council is not operational, and the Climate Change Working Group has only met a few times. The Climate Change Working Group is intended to act as a forum for policy dialogue and donor coordination in the climate change sector.

Figure 2-5 Disaster and climate governance in Solomon Islands (after: Humanitarian Advisory Group (HAG), 2022)



2.3 CCDR Policy Framework

This section provides a brief overview of the existing policy framework for climate and disaster resilience in Solomon Islands. It has been prepared based on the SIIP CCDR situational analysis (SIIP, 2021) and relevant literature published since that time.

For further context, Annex 2 includes a registry of the key climate change and disaster related agreements to which SIG is a signatory, as well as other guidelines and standards of relevance to this Strategy.

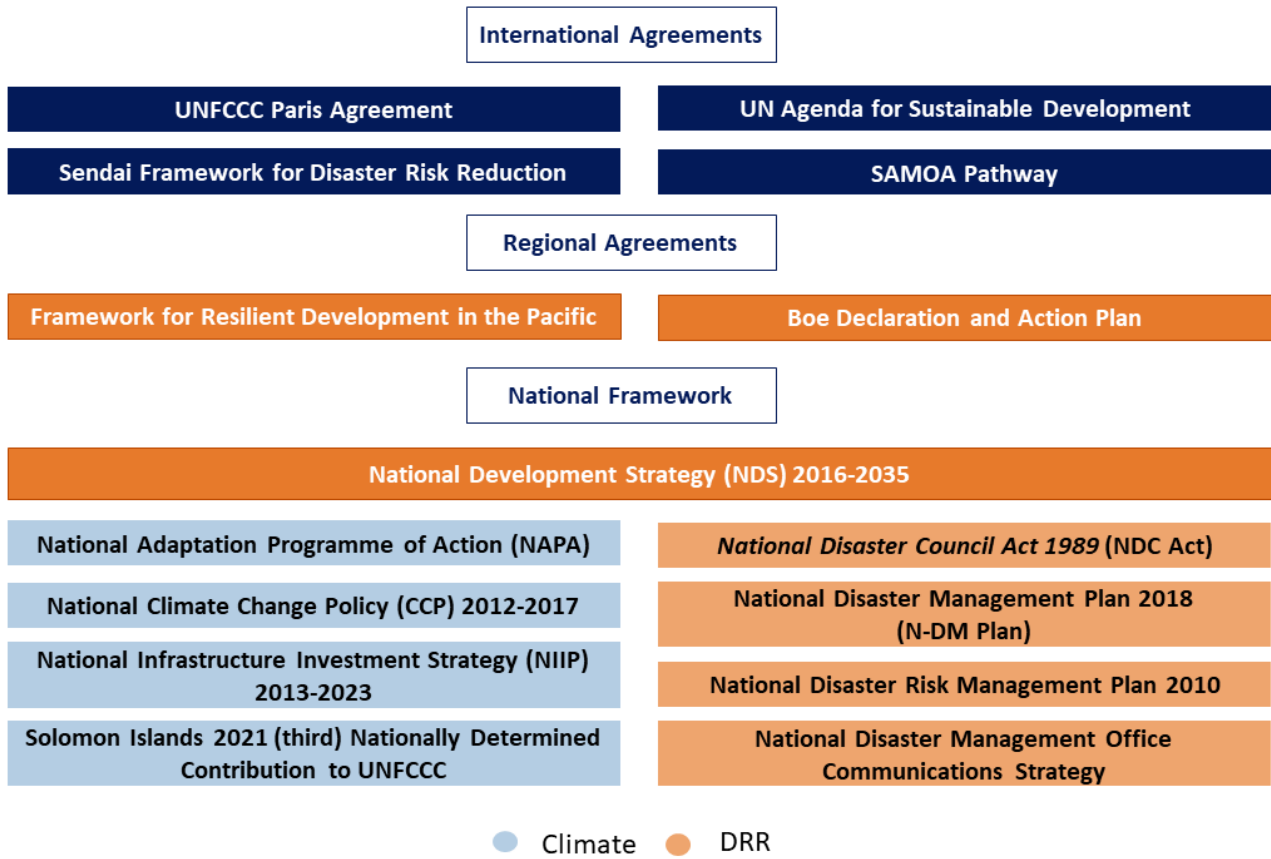
The network of policies, strategies and plans for managing CCDR in Solomon Islands is outlined below and illustrated in Figure 2-6):

- The **National Development Strategy 2016–2035** (NDS; MDPAC, 2016) outlines the strategic development plan for Solomon Islands with the stated vision of ‘Improving the social and economic livelihoods of all Solomon Islanders’. It identifies the need to ensure effective climate and disaster risk management in all development decision-making. The NDS is the key guiding SIG strategy for the SIIP.
- The **National Infrastructure Investment Plan 2013–2023** (NIIP; MDPAC, 2013) includes an overview of potential CCDR impacts and adaptation strategies. The NIIP is currently being updated.
- MECDM’s **National Adaptation Programmes of Action** (NAPA; Ministry of Environment, Conservation and Meteorology (MECM), 2008) includes a goal ‘To improve the resilience of key infrastructure to climate change and sea level rise’. Plans to revise it into a National Adaptation Plan (NAP) are currently underway.
- MECDM’s (2012) **National Climate Change Policy 2012–2017** (NCCP) integrates climate change and disaster risk reduction under the one policy framework. The policy vision is ‘A resilient, secure and sustainable Solomon Islands responding to climate change’. The NCCP is currently being updated as an integrated climate and disaster risk resilience policy with the aim to have it as the baseline policy for a future climate change bill.
- The **National Disaster Council Act 1989** establishes the National Disaster Council (NDC; refer Figure 2-5), the functions of which are to:
 - provide advice to the Minister on all matters relating to disaster,
 - approve and coordinate all activities in regard to disaster preparedness, response and recovery,
 - control all operations connected with a disaster, and
 - provide financial assistance to the committees through establishment of the NDC Fund.

The NDC establishes Provincial Disaster Committees to assist in administering the Act at a provincial level. The Act also requires preparation of a National Disaster Plan (refer Figure 2-6) and that the Council ensures provincial disaster plans are also prepared. The Act also enables the Minister to declare disasters.

- In their revised **Nationally Determined Contribution of 2021**, SIG committed to achieving net zero emissions by 2050. In addition, adaptation has been included in the revised Nationally Determined Contribution (MECDM, 2021). The revised Nationally Determined Contribution includes a range of actions relevant to infrastructure development and this CCDD Strategy.
- Consistent with its Nationally Determined Contribution 2018, Solomon Islands developed the **National Disaster Management Plan (N-DM Plan)**. The N-DM Plan covers the institutional arrangements, roles and responsibilities for disaster operations and recovery, process for declaring a disaster and special powers during a state of disaster. The N-DM Plan addresses the disaster risk management components (Parts 1-4) of the **National Disaster Risk Management Plan 2010 (NDC, 2010)**, which outlines Solomon Islands' disaster management arrangements and disaster and climate change risk reduction measures, including climate change adaptation for infrastructure.
- A Low Emission Development Strategy is currently being developed with a system to monitor, review and verify the implementation of the Nationally Determined Contribution.
- The MECDM is currently considering a position paper prepared by the World Bank on establishing a **Framework for Resilient Development in Solomon Islands**. It is understood that, if this framework is developed, it would replace Parts 5 and 6 of the National Disaster Risk Management Plan 2010.
- Part III of the *Environment Act 1998* includes specific provisions regarding environmental impact assessment (EIA). Section 15 requires the consent authority to consider the environmental impact of a proposal. Section 17 identifies activities classed as prescribed development for which a development application must be made. The *Environment Act 1998* also gives effect to regional and international conventions and obligations relating to the environment (such as the *Paris Agreement*). The Solomon Islands EIA Guidelines (MECM, 2010) provide guidance on preparing and submitting development proposals / applications in accordance with the requirements of the Environment Regulations 2008. At present, although sustainable development is a core principle of the Act, neither the Act nor the Regulations (or accompanying guidelines) include a specific requirement to consider climate change as part of the EIA process. The Attorney General is currently reviewing the Environment Act. It is understood this will involve preparation of an updated guideline for EIA which will provide guidance on how CCDD is captured in EIA process.

Figure 2-6 Frameworks for climate change adaptation and disaster risk reduction in Solomon Islands



2.4 Constraints to CCDR Mainstreaming in Infrastructure

The SIIP Design Document and Situational Analysis (Cardno International Development, 2021) identify the following knowledge gaps and constraints to mainstreaming CCDR in infrastructure planning, development and delivery in Solomon Islands:

- The range of natural and climate hazards affecting Solomon Islands increases the complexity and cost of infrastructure planning and delivery. However, there is currently no formal mechanism for formal cost-benefit assessment for projects which may enable evaluation of CCDR measures in infrastructure.
- Currently climate change and disaster risk reduction are not fully integrated in Solomon Islands. There is a desire within SIG to improve integration of climate change adaptation and disaster risk reduction (e.g. proposed Framework for Resilient Development in Solomon Islands), however it is understood the updating and implementation of policies and plans is slow, and in some cases stalled. This has delayed progress towards integrated programming. Although climate change and disaster risk reduction is slowly being mainstreamed into sectoral ministries, more is still to be done to integrate climate change and disaster risk reduction in other sectors and at the provincial level.
- There are limited resources (both financial and human resources) and technical capability to deliver climate and disaster resilient infrastructure within SIG.
- It is understood that few guidelines, safeguards and regulatory frameworks have been developed for the mainstreaming of CCDR in infrastructure planning, design, construction and maintenance.
- GEDSI is often poorly integrated in CCDR policy and guidelines.
- It is understood that there is no centralised climate change and disaster hazard and risk information database within key government ministries.
- There are limitations in existing SIG data and climate change projections to a level sufficient for informed decision-making in relation to individual, locally specific infrastructure proposals and designs.

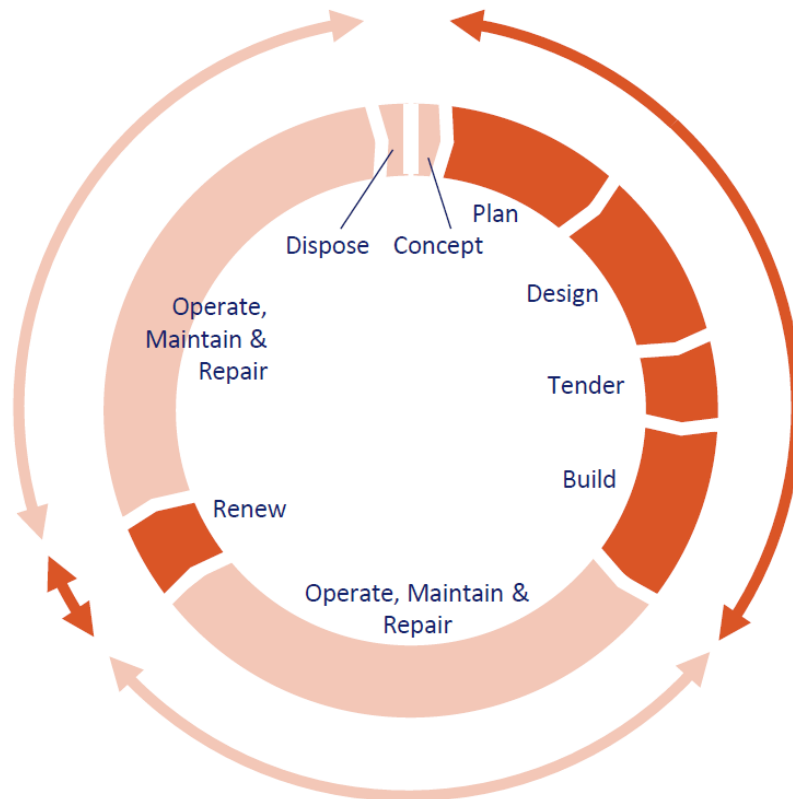
- A whole-of-government coordination approach to CCDR in infrastructure is hampered as infrastructure planning, delivery and management occur in different ministries with few established mechanisms and processes for knowledge-sharing.
- Historically CCDR funding support for Solomon Islands has been project-based, which is a challenge for sustainability and mainstreaming of CCDR in infrastructure delivery. The majority of climate change and disaster risk resilience funding falls outside the national budget. It is largely provided by donors (bilateral and multilateral) and climate change and DRR funding not monitored, tracked or reported by SIG. Further, the government budgetary allocation for infrastructure maintenance and/or renewal is much lower than required - as discussed in Section 2.1, the average annual damages to infrastructure arising from natural hazards is considerable. As a result, there is a general lack of infrastructure maintenance and poor coordination at all levels of government, which results in the need to replace existing infrastructure in addition to construction of new infrastructure.
- Initial stakeholder engagement suggests there is limited capacity to prepare applications or proposals for climate finance and the necessary data to support a proposal is either difficult to obtain or unavailable.

In addition, there are other factors that have potential to impact SIIP's objectives for CCDR, some of which are specific to the local context and some of which are broader considerations:

- GEDSI and CCDR should be considered concurrently, noting there may be gendered impacts of CCDR, or impacts to people with disabilities or other vulnerable people associated with CCDR risks or particular aspects of a project.
- There appears to be a lack of strategic spatial planning for infrastructure and services across Solomon Islands to support decision-making. Infrastructure typically has a long lifetime and infrastructure decisions can lock in development patterns for decades. Multi-hazard mapping can inform decisions on where infrastructure should be located to ensure long-term resilience and support disaster preparedness and response.
- Infrastructure is inherently interconnected and therefore no individual asset can be considered in isolation.
- There may be opportunities to incorporate CCDR mitigation elements in activity design that provide benefits beyond the project (e.g. a seawall upgrade for a market that also protects other social, environmental or built infrastructure).
- SIIP will invest in and deliver infrastructure but will have limited to no involvement in asset management or renewal. This issue is noted in the SIIP Asset Management Strategy, which recommends ways to mitigate downstream sustainability risk.
- Resources for maintenance and operations, monitoring and renewal activities to sustain assets are often lower than required, and therefore the climate change and disaster resilience of the infrastructure (and hence levels of service and residual life of the asset) may be compromised over time. Climate change adaptation pathways or similar adaptive management approaches may not be feasible.
- There are limitations on the types of materials and construction methodologies that may be adopted in Solomon Islands due to its relatively isolated location. This has cost implications and may limit the feasibility of some CCDR mitigation options.
- For the reasons detailed in the two points above, infrastructure delivered by donors is typically 'over-engineered', which can add to the cost of construction, increase the risk of maladaptation and have other unintended social or environmental impacts.

These factors are important for the sustainability and ongoing resilience of infrastructure in Solomon Islands, considering the entire asset life-cycle, as illustrated in Figure 2-7.

Figure 2-7 Infrastructure project life-cycle



The ACPG recently published the findings of a climate skills audit for the Solomon Islands (ACPG, 2021) which noted the high demand for Solomon Islanders with technical climate skills in priority sectors, including several of relevance to SIIP (energy, fisheries, transport, social infrastructure and water sanitation). The audit made the following recommendations of relevance to the SIIP:

- Increase collaboration between ACPG, Australia Pacific Training Coalition and other DFAT-funded aid investments in the Solomon Islands to support the supply of climate skilled workers for infrastructure projects.
- Adopt innovative and flexible options to deliver climate change training and information with programs funded by development partners.
- Develop gender sensitive models to deliver climate skills training that address barriers to participation for women and those from vulnerable groups.
- Leverage existing and new climate change-related projects in the Solomon Islands to increase employment opportunities for youth.
- Support increased involvement of productive sector enterprises in climate response initiatives through skills training and business development.

This CCDR Strategy seeks to provide a framework for delivering CCDR resilient and sustainable infrastructure within the context of the challenges outlined in this section of the Strategy, while at the same time building capacity for CCDR mainstreaming and supporting the operationalisation of the CCDR policies and plans by SIG.

3 SIIP CCDR Strategy

This CCDR Strategy is centred around the infrastructure life-cycle, noting the greatest opportunity to achieve CCDR outcomes is at the time an infrastructure need is identified (even *before* a proposal is conceived), and the level of influence and impact on the project diminishes as a proposal proceeds. Hence, this strategy should be read in conjunction with the sectoral analyses prepared by the SIIP team (due for publication in late-2022).

It will support the implementation of CCDR management for infrastructure planning and delivery by SIG and other stakeholders by assisting with policy development, the preparation of guidelines and other mechanisms for operationalising CCDR policies and plans, and capacity building and knowledge sharing.

Where possible, GEDSI aspects of the CCDR process have been identified to ensure appropriate mainstreaming of both these cross-cutting issues.

3.1 CCDR Objectives

SIIP’s CCDR objectives have been drawn from the SIIP Design Document and situational analysis. Four objectives underpin the CCDR Strategy:

- SIIP demonstrates effective mainstreaming of CCDR through all activities.
- SIIP supports its partners to integrate and implement CCDR through policy, planning and regulatory frameworks.
- Stakeholders planning and delivering physical infrastructure have improved capability and resources to mainstream CCDR in their projects.
- Stakeholders planning and delivering physical infrastructure have improved access to, and processes for, the collection of data on climate and disaster-related hazards and risks.

Table 3-1 summarises the entry points for SIIP to influence these objectives. The final column of the table indicates the alignment with the relevant intermediate program outcome(s).

Table 3-1 SIIP CCDR Strategy Opportunities and Entry Points / Strategic Alignment

Objectives	Opportunities and Entry Points	Relevant SIIP Intermediate Outcome(s)
Objective 1 – SIIP demonstrates effective mainstreaming of CCDR through all activities	SIIP will implement best practice CCDR management, drawing on international standards, safeguards and guidance of relevance to the local context and activities proposed.	IO1, IO2, IO4
	SIIP will seek the support of regional partnerships and organisations (including the APCP).	IO2, IO4
	The SIIP Hub team will consider CCDR at each stage of the infrastructure project life-cycle to support decision-making, including when deciding which activities are to be implemented under the SIIP.	IO4
	Community and stakeholder engagement undertaken for SIIP activities will include discussion of opportunities to improve community resilience and include GEDSI considerations.	IO4
	SIIP activities will be designed and constructed to achieve an acceptable level of resilience to climate and disaster-related risks over the asset life-cycle, and in consideration of opportunities for GHG emissions reduction.	IO4
	SIIP will identify opportunities to leverage CCDR funding in each activity.	IO3
	SIIP will seek opportunities to build local capacity in CCDR management through each activity. This will include capacity building for women, people with disabilities and vulnerable people in accordance with the SIIP GEDSI Strategy.	IO2, IO4

Objectives	Opportunities and Entry Points	Relevant SIIP Intermediate Outcome(s)
Objective 2 – SIIP supports its partners to integrate and implement CCDR through policy, planning and regulatory frameworks	In collaboration with DFAT, SIIP will engage with SIG ministries involved in planning and delivery of physical infrastructure to identify needs and entry points for this objective.	IO1, IO2
Objective 3 – Stakeholders planning and delivering physical infrastructure have improved capability and resources to mainstream CCDR in their projects	SIIP will support the development of guidelines for integrating CCDR (and including GEDSI aspects of CCDR) into every stage of the infrastructure life-cycle including planning, delivery and maintenance.	IO1
	SIIP will engage with key SIG Ministries and industry stakeholders to support improved awareness and capability in the application of the relevant international standards, guidelines and methods for successful mainstreaming of CCDR for infrastructure.	IO2
	SIIP will share learnings on CCDR mainstreaming in physical infrastructure projects. SIIP will also support stakeholders in sharing their own experiences and learnings.	IO2
Objective 4 – Stakeholders planning and delivering physical infrastructure have improved access to, and processes for collection of, data on climate and disaster-related hazards and risk	In collaboration with DFAT and the APCPSU, SIIP will engage with stakeholders involved in planning and delivery of physical infrastructure to identify needs and entry points for this objective.	IO1, IO2, IO4

3.2 Objective 1

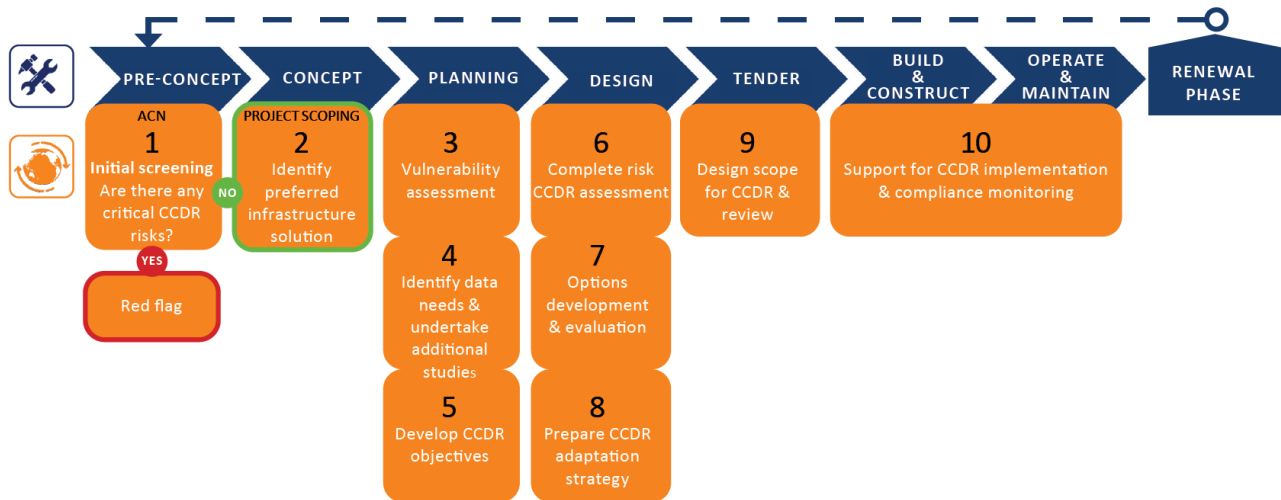
CCDR mainstreaming will be achieved through the delivery of services and activities by the SIIP Hub. SIIP will:

- Integrate CCDR into policies, strategies and procedures (including a toolbox of checklists, templates and other resources) and in Terms of Reference to ensure that SIIP’s operations enable the delivery of the Program’s highest goal.
- Consider CCDR at every stage of an activity life-cycle (as explained in this section).

This section outlines the procedures for directly delivered and co-financed projects that can be used to demonstrate good practice for CCDR. It details the CCDR inputs that apply to all stages of the project life-cycle for any infrastructure that is delivered or co-financed by SIIP and is compatible with the DFAT Climate and Disaster Risk Reduction – Guidance Note and APCP (2021) Resilient Infrastructure Good Practice guide.

The CCDR process for SIIP infrastructure projects is detailed in Figure 3-1.

Figure 3-1 SIIP CCDR Mainstreaming Process



3.2.1 Pre-concept phase

SIIP’s sector analyses provide an overview of the infrastructure gaps within the key sectors of the Solomon Islands economy where infrastructure can contribute to economic growth. These analyses reference the NIIP and include a preliminary qualitative review the exposure and vulnerability of the types of assets/infrastructure within that sector to climate and natural hazards. They also identify degree of interconnectedness of key infrastructure (i.e. reliance on other infrastructure types for functionality).

Activity proposals submitted to SIIP are analysed against SIIP’s Investment Framework, one criterion for which is ‘Strengthening climate change and disaster resilience’. The outcome of this process helps inform SIIP Technical Leads on whether further information is needed in the proposal and/or whether the proposal should proceed to the Concept Phase.

Informed by the relevant sector analysis and the Investment Framework, the SIIP Hub develops an Activity Concept Note (ACN) for proposed activities that outlines for the SIIP Steering Committee the level of climate and disaster related risk to the infrastructure. The ACN will include:

- Potential climate and disaster risks subject to initial evaluation as part of DFAT risk and safeguard screening tool;
- Potential CCDR requirements for the proposal and CCDR benefits that could be realised, including any ancillary benefits or low carbon opportunities; and
- Identification of potential CCDR capacity development opportunities.

The key questions to be addressed are: Is the location of the proposed infrastructure likely to be subject to any climate or disaster related hazards? Are there any potential climate or disaster related risks that may jeopardise the long-term sustainability or viability of the infrastructure asset?

3.2.2 Concept Phase

Concept phase includes the identification of need to resolve a problem or pursue an objective. It may include the shaping of possible solutions. Through a formal consultation process, project need and preferred infrastructure solution (or option) is identified.

Once the activity has been approved by the SIIP Steering Committee, initial activity scoping takes place. This includes policy analysis and formal consultations to identify the potential infrastructure solutions (or options). SIIP will also conduct stakeholder mapping to identify key parties (e.g. future asset owner, key beneficiaries or end users) that would need to be engaged in the planning phase regarding CCDR practice through the project life-cycle. This should be undertaken in consultation with the GEDSI specialist to ensure appropriate representation of women, people with a disability and vulnerable stakeholders. Initial risk

screening and scoping of CCDR requirements (e.g. additional data collation, detailed investigations, etc.) is undertaken.

Key questions to be addressed in the concept phase include: Is the proposed infrastructure vulnerable to the impacts of climate change and natural disasters over the full life-cycle of the asset? What climate parameters and natural disasters are most relevant? Is there sufficient climate and other data available to undertake vulnerability and risk assessments? What reasonable assumptions can be made about climate change and its impacts? What are the specific CCDR requirements for this project (e.g. level of performance)? Who are the main stakeholders?

3.2.3 Planning Phase

The planning phase includes confirming the 'service' required and ensuring the most effective solution (infrastructure or non-infrastructure) is found to meet that need. This is a more structured phase of clarifying objectives, scoping and evaluating options. It would include considerations about benefits/costs/affordability, and social or environmental impacts.

At this stage detailed scoping takes place. Key questions we would seek to address at this stage include: How has this type of infrastructure coped with natural disasters in the past? What natural disasters have affected the project location in the past? What are the current and future trends in climate? What are the elements of the infrastructure (whether assets or operations/services) are most vulnerable to hazards, and is this likely to change over time?

The following tasks are to be undertaken during the planning phase:

- Develop a list of assets, operations and systems (or functions) that will comprise the proposed infrastructure.
- Undertake a vulnerability assessment considering each of the above elements of the project to identify key climate and natural hazards of concern. It is recommended that key stakeholders and/or 'customers' (i.e. end users) are involved in this process, noting that institutional and traditional knowledge are likely to be key inputs to the vulnerability assessment.
- Liaise with the GEDSI Coordinator to review the GEDSI analysis prepared for the project and ensure any CCDR impacts specific to gender, people with a disability and vulnerable people are appropriately considered in the CCDR vulnerability assessment.
- Commence collation of available data and mapping on climate and natural hazards for the locality/site and identify data gaps. Where possible, this should include up-to-date site-specific and/or down-scaled projections/data. This may require:
 - contacting other stakeholders to obtain data (e.g. APCP or MECDM), and/or
 - scoping and undertaking additional studies or data collection to fill critical data gaps.It is noted that, in addition to the climate and climate change projections published by APCP (refer CSIRO and SPREP, 2021), the APCPSU can provide support for further studies through their expert panel.
- Consider other sources of climate or disaster related funding for the proposal and any associated CCDR requirements for financing proposals (e.g. where SIIP may only be funding the design and not the construction of the asset).
- If required, provide oversight of the Environmental and Social Impact Assessment scoping and delivery to ensure climate change and natural disaster is appropriately addressed.
- Scope the CCDR requirements for the proposed activity in consultation with the SIIP project team, project beneficiaries and project partner (i.e. future asset owner).
 - develop initial CCDR objectives for the project appropriate for the desired service outcomes and design life of the infrastructure, considering also any GEDSI aspects of CCDR.
 - identify the appropriate climate change projections and emissions scenario (or range thereof).
- Develop a CCDR workplan for the project and brief the project team.

3.2.4 Design Phase

Once a workplan is in place, the design phase will commence. This phase consultation with project users and stakeholders, detailed design and the preparation of design documentation. Structural and service elements are designed, and materials and physical works are quantified. Documentation is prepared for procurement of civil and other works.

Key questions that would be answered during the design phase include: Can the likelihood of occurrence of the hazards be quantified (e.g. via a return period)? How will the relevant climate and disaster related hazards impact the infrastructure asset and its operation? What is the risk to the asset over its full life-cycle? What CCDR solutions are technically feasible to address the high risks? What are the costs and benefits of these solutions, and how well do they reduce the overall level of risk? Which of the suite of available solutions is preferred for the infrastructure project?

The following tasks are to be undertaken during the design phase:

- Undertake detailed and (where appropriate) quantitative climate and disaster risk assessment including evaluation of risks associated with critical inter-dependences on other infrastructure. The recurrence intervals for the climate and natural hazards of importance to the project will inform the likelihood criteria in the risk assessment. The CCDR objectives (refer Planning Stage above) will be translated into consequence criteria for the risk assessment.
- Where possible, develop multi-hazard mapping of the project location to support design development.
- For the high and extreme risks, consider a range of potential risk mitigation and/or adaptation options for the proposed activity. These may include:
 - physical measures – structures, systems, technologies, services
 - social measures – people, behaviour, operations, information
 - risk transfer – insuring to recover/repair assets (or parts of assets) following an event.
- In addition, opportunities for low carbon development (e.g. adoption of renewable energy supply, low carbon materials) will be proposed.
All risk mitigation and low carbon options will need to be evaluated by the SIIP project team and project partner(s) for the full project life-cycle with respect to: engineering feasibility, constructability, environmental and social impacts, GEDSI considerations and economic evaluation (cost-benefit or cost-effectiveness analysis).
- Identify the preferred CCDR options to be adopted for the design, construction and/or operational phases of the project, update the risk assessment to show the residual level of risk following adoption of these options, and develop a Disaster Risk Reduction (DRR) and Climate Change Adaptation Strategy for the project.
- Where the SIIP team will engage a third party to prepare the concept and detailed design, contribute to the design brief with respect to CCDR and related GEDSI requirements.
- Undertake design review to ensure the agreed CCDR options are incorporated.
- Ensure CCDR (and related GEDSI) considerations are included in any change management process for the activity.

3.2.5 Tender phase

This phase refers to the procurement of contractors to build (and potentially operate and maintain) the asset. An invitation to tender is issued and contractors are provided with the documents they need to prepare a submission of how they would carry out the works and the proposed budget. A preferred bidder is selected and negotiations take place leading to the signing of a contract for construction.

Key questions at both the tender and build/construction phases include: Who has capacity to implement the selected options? Is there a need for capacity building to support implementation of the CCDR measures in the project?

The following tasks are to be undertaken at the tender phase:

- Contribute to the brief with respect to CCDR requirements for the proposal (e.g. performance requirements or specifications).

- Provide briefing to tenderers on CCDR and related GEDSI requirements.
- Undertake tender evaluation with respect to CCDR.

3.2.6 Construction phase

The successful contractor mobilises and constructs the new asset. Construction is overseen by a qualified supervisor to ensure the works are completed in accordance with the specification.

The following tasks are to be undertaken during this phase:

- Ensure the contractor has appropriate resources and/or support for mainstreaming of CCDR.
- Ensure the contractor's Construction Environmental Management Plan has evaluated potential climate and disaster risks of relevance to the construction phase and mitigated any high risks through implementation of appropriate controls. This should include potential for the construction activities to increase risk to adjacent stakeholders/landowners, should an event occur during construction (e.g. flood afflux due to stockpiles).
- Undertake regular checks of compliance with the CCDR requirements for the project (e.g. including review of Works as Executed drawings).

3.2.7 Operate and maintain phase

Once an asset is handed over to the asset owner to operate and maintain, the asset owner is accountable for ensuring the infrastructure provides the intended level of service over its anticipated life. The asset owner may delegate some responsibility to third parties but maintains overall accountability.

Key questions to consider in this phase include: Is there a need for additional capacity building? How can the success of the CCDR measures adopted in the project be measured? How can monitoring be used for learning? How will lessons be collated and shared with key stakeholders to improve future infrastructure development, delivery and management activities?

The following tasks are to be undertaken in the operate and maintain phase:

- Ensure any CCDR related activities, operational systems/processes, data collection and/or monitoring requirements are incorporated into the Asset Management Plan (or other systems or procedures as required). This should include natural disaster preparedness, response and recovery measures, along with budget forecasts for these activities over the life-cycle of the asset.
- Periodic updates of the climate and disaster risk assessment should be undertaken, informed by data collection for the infrastructure (see above), to identify any emerging risks or changes in the expected risk profile. An adaptive management response may be required.
- Brief the asset owner on the CCDR requirements for the operations and maintenance phase.
- Suggest the asset owner has appropriate level of resources and/or support for implementation of these requirements.
- Where possible, undertake periodic reviews of the CCDR related activities for the operational phase in collaboration with the asset owner.

3.2.8 Renewal

Renewal is the replacement of assets (or components of an asset) that have reached the end of their useful life. Individual elements of the asset may need to be updated because they are no longer functioning as required and their renewal is critical to the life of the whole asset.

Should renewal of an asset be proposed, the CCDR mainstreaming process should start at the pre-concept phase and work through the process above.

3.3 Objectives 2 and 4

3.3.1 CCDR mainstreaming needs analysis for SIG

In progressing this objective, the first task would be to undertake a needs analysis. In collaboration with DFAT, SIIP will engage with SIG ministries involved in planning and delivery of physical infrastructure to identify needs and opportunities and respond to stakeholder priorities.

The first step would be to prepare an updated CCDR stakeholder engagement plan prepared in accordance with the International Association of Public Participation's (IAP2) guidelines, to include:

- A matrix identifying the relevant stakeholders (i.e. divisions within ministries, etc., including specific contact person) and their level of interest in, and influence on, SIIP.
- Proposed level of engagement (as per the IAP2 spectrum of participation) for each stakeholder.
- Specific objectives for engagement for each stakeholder (or group of stakeholders).

The stakeholder engagement plan would be implemented over September to December 2022. It is noted that the engagement plan will need to be flexible and responsive to stakeholder needs. As such, it would be maintained as a living document. All engagement activities would be undertaken in accordance with the SIIP engagement protocols and meetings recorded in the SIIP MEL database.

Following completion of the engagement program, the needs analysis report would be prepared. It would document:

- The purpose and scope of the needs analysis.
- Methodology/engagement activities undertaken.
- An analysis of strengths, weaknesses and opportunities/needs.
- Recommended activities to be delivered by SIIP in partnership with relevant stakeholders, including roles and responsibilities, proposed timing, etc. Activities may range from support for policy development to developing CCDR resources/tools, capacity building and other activities.

The needs analysis report would then be circulated to participants in the engagement program for their review and endorsement. It is anticipated that the draft report would be completed by February 2023.

The needs analysis would be led by the SIIP Climate and Community Manager, who will undertake the majority of the stakeholder engagement, with the support of the CCDR short-term Adviser (acting remotely, with visits proposed in 2023).

Following finalisation of the needs analysis, the SIIP CCDR Team would develop a package of support for approval. This CCDR Strategy and the accompanying implementation plan would be updated to reflect the approved activity, to include resourcing requirements.

3.3.2 Short-term activities

Concurrent with the needs analysis, the SIIP CCDR Team has identified some priority activities to be progressed over the next six months:

- **Assist MECDM - CCD with development of the new National Climate Change Policy** - CCD is currently undertaking engagement with provincial authorities and will commence consultation with other stakeholders early in 2023. There is potential to provide input with respect to integration of CCDR in infrastructure following the conclusion of consultation.
- **Assist MECDM - CCD with development of new National Adaptation Plan** - Initial engagement indicates the NAP readiness plan is still in development. There is potential to assist in mainstreaming CCDR in the NAP, in particular for infrastructure.
- **Review of the *Environment Act 1998* by the Attorney General** – It is anticipated that the revised Bill will be finalised next year following consultation with provincial authorities. For the EIA process, ECD are currently guided by an updated guideline (or checklist) developed by the ADB which captures both CCDR

and GEDSI aspects of EIA. There is potential to work with MECDM to undertake a review of the new Bill with respect to ensuring CCDR is reflected in the environmental impact assessment process.

- **Collation and gap analysis of available spatial and other data** – There is potential to work with MECDM to collate existing GIS and other data, studies and reports on climate and disaster risk and vulnerability for Solomon Islands and identify gaps. This would complement the needs analysis discussed in Section 3.3.1 but would focus on spatial and other data relating to climate-related and other hazards. Activities to address priority gaps would be identified, which may include:
 - Support to develop or source locally down-scaled climate modelling (e.g. via APCP).
 - Preparation of standardised, GIS-based multi-hazard mapping.
 - Providing advice and tools to support ongoing data collection on hazards and risks (e.g. through incorporation of monitoring and reporting requirements in Asset Management Plans).
 - Support the improvement of the CCDR GIS database within MECDM.
- **Framework for Resilient Development in Solomon Islands** – SIG is currently considering a Framework for Resilient Development, as recommended by the Pacific Regional Infrastructure Forum (PRIF). SIIP proposes to discuss with MECDM (and/or MNPDC) the need for support in development of the Framework.
- **Draft National Building Code** – SIIP will engage with MID to investigate opportunities to support integration of CCDR in the draft Code.
- **Memorandum of Understanding (MoU) with MECDM** – SIIP is currently investigating the possibility of establishing an agreement with MECDM to engage GIS and climate change officers to scope exposure of our activity sites/locations to climate and other natural hazards to inform vulnerability assessments (refer Section 3.2.3). This has potential to be beneficial with respect to building MECDM’s database of hazard information and also providing access for SIIP to the latest available datasets.
- **Industry engagement** - Initial industry engagement will be undertaken by SIIP Hub to brief contractors and suppliers on SIIP and requirements for tendering for projects being delivered by SIIP. This briefing session will include an overview of relevant CCDR requirements. In addition, a survey will be distributed to industry to seek feedback on their needs for capacity development. This can inform the industry needs analysis.

These broad activities are included in the current CCDR Strategy implementation plan. The activities will be updated and expanded upon in the implementation plan as required pending the outcome of initial engagement with the relevant SIG stakeholders.

3.4 Objective 3

3.4.1 CCDR mainstreaming needs analysis for other stakeholders

As described above, the CCDR Strategy implementation plan includes needs analyses for other key stakeholders, namely

- Industry, that is, companies and other organisations engaged to develop, deliver, operate or maintain infrastructure (e.g. construction sector, contractors, suppliers).
- Universities, on opportunities for training or professional development of emerging professionals in CCDR. The APCP’s recent climate skills audit for the Solomon Islands (APCP, 2021) identified a high demand for Solomon Islanders with technical climate skills in priority sectors.

It is proposed to undertake the needs analyses for industry and the tertiary educational sector concurrently with the SIG needs analysis and adopting the same methodology. Where appropriate, a single needs analysis report would be prepared covering all three stakeholder groups (noting this may not be achievable depending on timeframes).

Based on the outcomes and recommendations of the industry and tertiary educational sector needs analyses, a concept would be developed for approval of the proposed activity(ies). This CCDR Strategy and the accompanying implementation plan would be updated to reflect the approved activity, to include resourcing requirements.

3.4.2 Capacity building for SIIP Hub team

The CCDR Team are also investigating critical CCDR knowledge gaps and training needs for the SIIP Hub team.

As a first step, following initial discussions with APCP's Solomon Islands representative, an invitation has been extended to APCP's Honiara-based representative to present to the SIIP Hub team. Following this presentation on the APCP and CCDR for infrastructure, a survey will be circulated to the SIIP Hub team to seek feedback on their level of interest in climate change and DRR, as well as any specific training needs relating to delivery of infrastructure by SIIP.

The CCDR Team will then develop, source or identify relevant training or other activities (such as seminars) which can be rolled out as an ongoing program of professional development.

4 Implementation Plan

Annex 3 includes the Annual CCDR Strategy implementation plan.

The first annual implementation plan aims to facilitate mainstreaming of CCDR within SIIP by developing the tools and resources required to follow the processes detailed in Section 3.1 and also to undertake needs analysis with key stakeholders from the relevant SIG agencies relating to CCDR objectives 2 to 4 as detailed in Sections 3.3 and 3.4. The forecast budget for the period, excluding personnel costs, is estimated at around AUD20,000.

4.1 Roles and responsibilities for implementation

This section details the implementation arrangements for the CCDR Strategy, including governance, key tasks, and roles and responsibilities.

The SIIP CCDR Team comprises:

- The Climate and Community Manager;
- CCDR short-term Adviser; and
- CCDR Coordinator (position to be proposed).

The SIIP Climate and Community Manager has overarching responsibility for the delivery of the CCDR Strategy with the support of the GEDSI, Safeguards and CCDR Team. Thematic leads will report on the aspects that fall within their purview at agreed reporting periods. The Climate and Community Manager is responsible for day-to-day implementation with technical support from the CCDR short-term Adviser and CCDR Coordinator.

Every team member involved in implementation of a SIIP activity will be inducted into the CCDR Strategy requirements. The CCDR Team will provide specialist support to SIIP team members and partners as may be required for some activities.

The SIIP Capacity Development and Training Coordinator may assist in implementation of the CCDR capacity development activities through the Capacity Development Strategy.

The SIIP Communications and Public Diplomacy Strategy will support the implementation of the CCDR Strategy by using stakeholder and community engagements and appropriate messaging to demonstrate CCDR mainstreaming through SIIP activities. The CCDR Team will work with the Communications Team to identify communication opportunities.

4.2 Monitoring, Evaluation and Learning

CCDR objectives are linked to SIIP's intermediate outcomes and reflected in the Monitoring, Evaluation and Learning Plan (MELP).

Table 2 in the MELP identifies the MEL performance indicators. The key indicators of relevance to CCDR are:

- Number of instances, and extent, where SIIP support has resulted in improved implementation of infrastructure policies and regulations, including for CCDR, GEDSI, and environmental and social safeguards.
- Number of instances, and extent, where SIIP assistance has resulted in infrastructure policy and regulatory improvements, including integration of GEDSI, CCDR, and environmental and social safeguards.

Data collection and reporting tools have been identified in the SIIP MELP and include mechanisms such as Advisor progress reports, activity review reports, activity evaluations and surveys, amongst others.

SIIP Hub team members will be required to follow the MELP and ensure that CCDR requirements are met and reported in accordance with this Strategy for all activities. This will include compliance with the CCDR

mainstreaming requirements for SIIP activities detailed in Section 3.2, which will be audited by the Climate and Community Manager.

Key learnings arising from implementation of the CCDR Strategy will be documented in case studies and conference papers.

4.3 Annual review and update of the CCDR strategy and implementation plan

A CCDR Work Plan will be prepared annually to detail the actions and activities to be delivered under this CCDR Strategy.

In particular, SIIP will engage with DFAT, SIG ministries and other key stakeholders involved in planning and delivery of physical infrastructure to identify needs and entry points for the CCDR Strategy on an annual basis to inform each annual CCDR Work Plan. The Annual CCDR implementation plans will also consider any key learnings or monitoring and evaluation outcomes from the previous year.

In addition, there will also be an annual review and update (as required) of this CCDR Strategy.

5 References

- ADB (2014) *Climate Risk Management in ADB Projects*. Asian Development Bank.
- ADB (2017) *Quick Guide Disaster Risk Assessment for Project Preparation*. Asian Development Bank.
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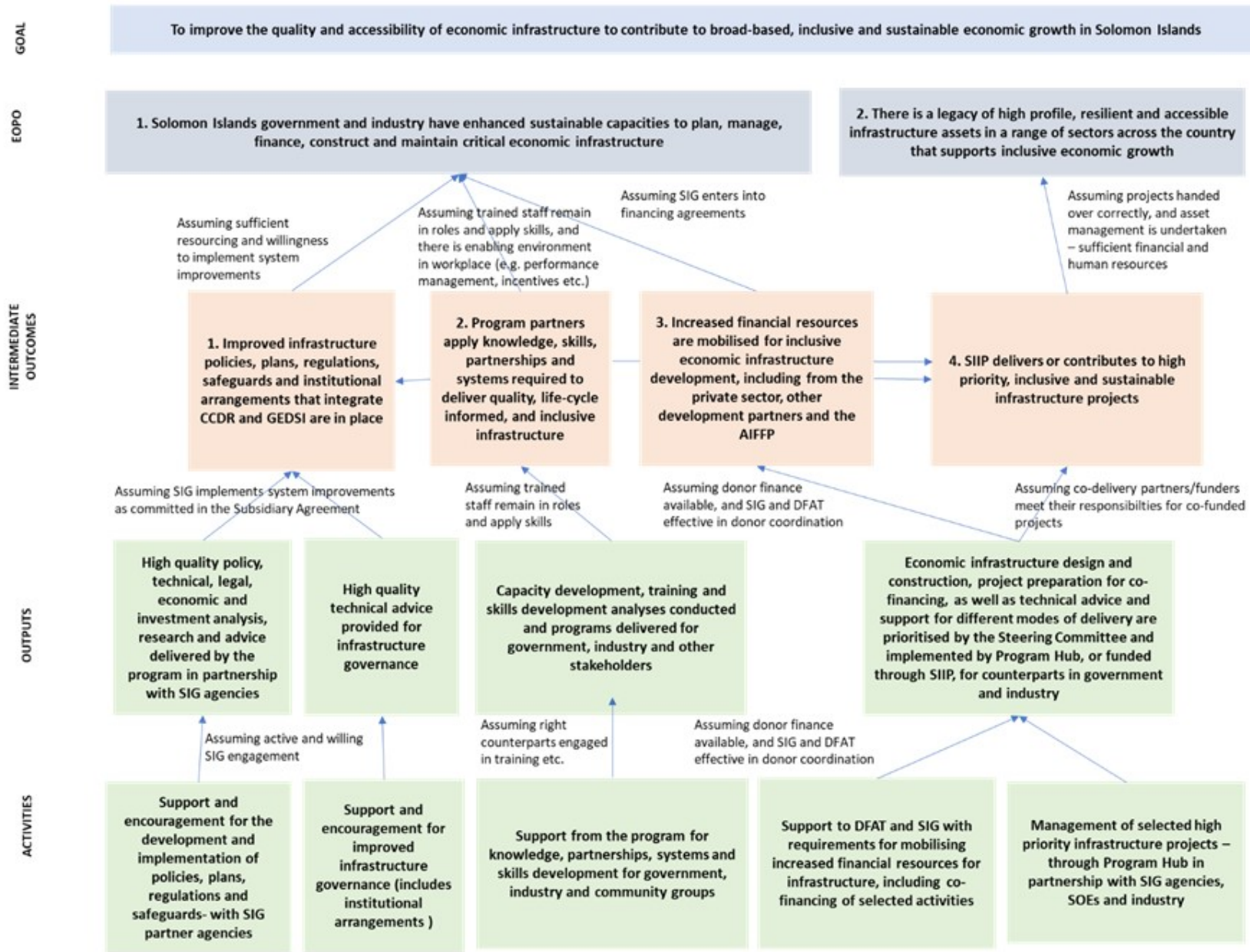
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Annex 1 SIIP Program Logic

Ways of Working
 Policy dialogue and engagement, systems strengthening and sustainability, technical assistance, training and capacity building, multilateral and bilateral donor coordination, financial leveraging, GEDSI and CCDR integration, environmental and social safeguards



Program Principles
 Alignment, Inclusivity, Climate Change and Disaster Resilience, Local Content, Safety and Quality

Annex 2 Key Agreements, Guidelines and Standards for CCDR

This annex provides a brief overview of the context for the CCDR Strategy with respect to the International, Australian Government and Solomon Islands country context. The SIIP Design Document states that the Program will need to adhere to all SIG and Australian Government policies, including relating to management of risks and environmental and social safeguards.

International agreements

UN Sustainable Development Goals

The United Nations 2030 Agenda for Sustainable Development includes 17 Sustainable Development Goals (SDGs) to guide global development efforts. These include Goal 13: Take urgent action to combat climate change and its impacts.

Relevant targets under Goal 13 include (amongst others):

- Target 13.1 – Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
- Target 13.2 – Integrate climate change measures into national policies, strategies and planning
- Target 13.b – Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focussing on women, youth and local and marginalised communities.

This CCDR Strategy gives effect to Goal 13 within the SIIP.

Paris Agreement on Climate Change

The key international framework to address climate change is the *Paris Agreement*, which builds on the work of the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. The Paris Agreement aims to limit the increase in global average air temperature to 1.5°C to reduce the risks and impacts of climate change.

As part of the *Paris Agreement*, countries must submit a Nationally Determined Contribution for emissions reductions. A key component of the Agreement is a commitment by donor countries such as Australia to provide support for climate action in developing countries in need (consistent with SDG Target 13.a). The UNFCCC's Global Environment Facility and the Green Climate Fund receive and disperse funds to developing countries. There are also a range of specialised funds, including the Special Climate Change Fund, the Least Developed Countries Fund and the Adaptation Fund, which are also administered through the UNFCCC. However, funding is also available via philanthropic organisations, private sector investment, and from other development and humanitarian funding sources.

The Australian and Solomon Islands Governments are both signatories to the *Paris Agreement*.

Sendai Framework for Disaster Risk Reduction 2015–2030

The Sendai Framework for Disaster Risk Reduction 2015–2030 (the Sendai Framework) identifies four priorities for action:

- understanding disaster risk
- strengthening disaster risk governance
- investing in disaster risk reduction for resilience
- enhancing disaster preparedness for effective response and to 'Build Back Better' in recovery and reconstruction.

The Sendai Framework also recognises that climate change and natural disasters require an integrated response that emphasises improved governance to manage risk, investment in risk reduction, and improved disaster risk preparedness and response.

Framework for Resilient Development in the Pacific

One of the key regional initiatives is the Pacific Resilience Partnership (PRP), which is a collaboration between the Secretariat of the Pacific Community (SPC), Secretariat of the Pacific Regional Environment Programme (SPREP), Pacific Islands Forum Secretariat (PIFS), United Nations Development Program (UNDP), United Nations Office for Disaster Risk Reduction (UNISDR) and the University of the South Pacific (USP). The PRP is the implementation mechanism for the Framework for Resilient Development in the Pacific (FRDP) and provides strategic guidance on how to enhance CCDR within the context of sustainable development.

High level strategic guidance to different stakeholder groups on how to enhance resilience to climate change and disasters is provided by the Framework for Resilient Development in the Pacific: An Integrated Approach to Address Climate Change and Disaster Risk Management (FRDP) 2017–2030 (PRP, 2016). The FRDP advocates for the adoption of integrated approaches, wherever possible, in order to make more efficient use of resources, to rationalise multiple sources of funding which address similar needs, and for more effective mainstreaming of risks into development planning and budgets.

The Solomon Islands' National Disaster Risk Management Plan (NDC, 2010) directly references three goals of the FRDP:

- strengthened integration adaptation and risk reduction to enhance resilience to climate change disasters
- low-carbon development
- strengthened disaster preparedness, response and recovery.

Boe Declaration and Action Plan

The Boe Declaration on Regional Security acknowledges the dynamic geopolitical environment that has reaffirmed the need for strengthened collective and cohesive action to effectively manage the regional security environment. The Action Plan sets out a range of activities under six strategic focus areas, which includes Climate Security. Proposed actions under Climate Security range from building capacity to respond to the impacts of climate change, supporting implementation of the *Paris Agreement*, and mainstreaming the FRDP (see above) into national development and disaster management plans.

SAMOA Pathway

The Small Island Developing States (SIDS) Accelerated Modalities of Action – SAMOA Pathway – articulated the commitments made by SIDS leaders at the Third International Conference on SIDS held in Apia, Samoa, in 2014 to promote an integrated approach to sustainable development over the next 10 years. Climate change and disaster risk reduction are two of the focus areas of the SAMOA Pathway, and a number of commitments and actions are proposed for each of these areas.

DFAT Standards and Guidelines

There are also a range of DFAT standards and guidelines with which SIIP must comply. The key relevant policies, strategies and guidelines are discussed below.

Climate Change Action Strategy

Australia's supports climate change action through its development assistance program and in accordance with its Climate Change Action Strategy (DFAT, 2019a). The objectives of the strategy are to:

- Support partner countries to adapt to climate change, and to plan, prepare for and respond to climate related impacts;
- Promote a shift to lower-emissions development in the Indo-Pacific region; and
- Support innovative solutions to climate change, including those that engage private sector investment.

One of the six key focus areas of Australia's support for the region is **building climate-resilient infrastructure**. One of the key mechanisms supporting this focus area is the AIFFP, which partners with governments and the private sector to support quality, inclusive and resilient economic infrastructure development.

The Strategy commits DFAT to integration of climate change across their development assistance program adopting socially inclusive and gender responsive approaches (DFAT, 2019a), reinforcing the importance of mainstreaming GEDSI and CCDR concurrently.

Environmental and Social Safeguards Policy

DFAT's Environmental and Social Safeguards Policy (2019b) identifies the five safeguards that must be considered when identifying and managing the potential environmental and social impacts of aid investments. The first relates to environmental protection, which specifies requirements for the identification and mitigation of the impacts of climate change and disaster risk reduction as part of the environmental and social impact assessments undertaken for DFAT's investments. There are also requirements for management plans prepared to support project implementation.

The accompanying Environmental and Social Safeguard Operational Procedures (DFAT, 2019c) and Risk and Safeguard Screening Tool provide guidance on implementing the Policy. Risks identified in the Risk and Safeguard Screening Tool are to be transferred into the DFAT Investment Risk Register.

One of the requirements of the Policy is compliance with the Australian *Environment Protection and Biodiversity Conservation Act 1999*.

Climate Resilient Infrastructure Guidance Note

A Climate Resilient Infrastructure – Guidance Note (DFAT, 2018) provides guidance on how to integrate disaster risk reduction and climate change adaptation into Australian aid investments (particularly in core sectors such as infrastructure) in order to protect DFAT investments and support countries to minimise risk from disasters.

The Guidance Note outlines the key actions required to integrate CCDR into the aid program cycle, several of which are relevant to the SIIP. These include (but not limited to): climate change and disaster risk management, policy dialogue, planning, and for concept and design of investments.

Requirements of other donors and funding bodies

Many multi-lateral lenders have specific requirements for managing the risk to their investments from natural disasters and climate change. These will require consideration during implementation of any Activities under the SIIP that are seeking finance from another organisation and should be identified early.

For example, the Asian Development Bank (ADB) has both a Disaster Risk Assessment process (ADB, 2017) and a Climate Risk Management Framework (ADB, 2014) that specify processes and deliverables to ensure climate and disaster risk is appropriately addressed at different stages of the project cycle. These include risk screening, formal Disaster Risk and Climate Risk and Vulnerability Assessments (including technical and economic evaluation of adaptation options), and monitoring and evaluation requirements. The ADB has also prepared a range of Guidelines for Climate Proofing Investment for various sectors such as the energy, water and transport sectors. Further guidelines to assist projects in implementing the Framework are forthcoming (e.g. economic assessment guidelines). Further information on the eligibility criteria for funding of investments under the ADB's Climate Change Fund can be found in the Implementation Guidelines (ADB, 2020).

As stated in the Environmental and Social Safeguard Operational Procedures (DFAT, 2019c), for larger and/or more complex infrastructure projects, more comprehensive standards such as those of the World Bank Environmental and Social Framework or the International Finance Corporation Environmental and Social Performance Standards should be applied where appropriate.

International standards

International standards of relevance to climate change include:

- International Standard ISO 14080:2018 Greenhouse gas management and related activities – Framework and principles for methodologies on climate actions

- Australian Standard AS 5334–2013 Climate change adaptation for settlements and infrastructure – A risk based approach
- International Standard ISO 14090:2016 Adaptation to climate change – Principles, requirements and guidelines
- International Standard ISO 14091:2021 Adaptation to climate change – Guidelines on vulnerability, impacts and risk assessment
- ISO 14092:2020 Adaptation to climate change – Requirements and guidance on adaptation planning for local governments and communities.

Annex 3 Annual CCDR Strategy Implementation Plan 2022/2023

Activity	Estimated Budget (AUD)	FY 2022/2023			
		Q1	Q2	Q3	Q4
Needs Analyses					
Develop CCDR stakeholder engagement matrix and CCDR stakeholder engagement plan.		■			
Undertake stakeholder engagement.	\$3,000		■		
Prepare needs analysis report				■	
CCDR Toolkit for SIIP Hub					
Develop CCDR Strategy induction for new SIIP personnel		■			
Develop CCDR Strategy induction for contractors		■			
Develop checklists and templates for CCDR requirements at each stage of the project lifecycle for use by SIIP Hub team		■	■		
Develop compendium of CCDR resources for infrastructure, in particular standards, guidelines, manuals and resources on climate and disaster hazards. Undertake gap analysis and identify needs for SIIP program		■	■	■	
Develop auditing of activity template and undertake auditing of activities delivered by the SIIP Hub for compliance with the CCDR Strategy (Section 4.2)	\$5,000	■	■	■	■
CCDR Support to SIG					
Assist MECDM - CCD with development of the new national Climate Change Policy currently in development.			■		
Initial collation of existing GIS and other data, studies and reports on CCDR risk and vulnerability for SI and identify gaps.			■		
Assist MECDM - CCD with development of new National Adaptation Plan.			■	■	
Ensuring CCDR is reflected in the EIA process via the <i>Environment Act 1998</i> .			■	■	
Discuss with MECDM (and/or MNPDC) the need for support in development of the Framework			■		
Initial engagement with MID to investigate opportunities to support integration of CCDR in the draft Code			■		
Investigate potential for MoU with MECDM re: provision of services for GIS.			■		
Capacity Development Initiatives					
Identify internal SIIP Hub CCDR training needs and opportunities		■	■		
Engage with infrastructure industry (e.g. construction sector, suppliers) on CCDR needs and opportunities	\$2,000	■	■		
Engage with universities on opportunities for training or development of emerging professionals in CCDR	\$5,000	■	■		
Deliver professional development activities on CCDR mainstreaming (e.g. seminar)	\$5,000		■	■	■
Other / Ongoing CCDR Activities					
Provide CCDR input to Sector Analyses		■	■		
Provide support for ongoing CCDR mainstreaming in SIIP activities (incl. Activity Concept Notes, etc)		■	■	■	■
Engage with APCP Support Unit to identify opportunities to support the CCDR Strategy implementation		■	■	■	■
Develop a CCDR case study for the SIIP website (included in MEL budget)			■	■	
Develop 2023/2024 CCDR Strategy Implementation Plan					■

