

Annual Performance Report CY2022

APR CY2022 Section 2: Implementation Progress - v1 (Draft) 2023-07-26 19:54 +09:00

[APR CY2022] Section 2: Implementation Progress

Please note that this is section 2 of the five Annual Performance Report (APR) sections. APR will be considered valid only after all the five sections are filled with relevant details.

2.1 Overall (summary) project progress

The project was given approval by the GCF to extend for another two (2) years, ending in 10 December 2023. A summary of progress over this reporting period, January to December 2022, includes:

PMU: In light of the Mid Term Review (MTR), the two PMUs have now co-located at VMGD in June 2022, improving project and activity coordination. The SPREP Executing Entity has increased its support to VMGD with regards to the facilitation of large procurement that had been delayed. eg the procurement of Automatic Weather Stations and Automatic rain gauges under activity 1.2.1: upgrading and expanding the Vanuatu observational networks. The Implementing Entity engaged a Consultant Firm - Pacific Advisory in April, to provide project management support to progress activities on the ground in Vanuatu, and to backstop some of the capacity constraints previously identified in project supervisions. This has been justified given the gap in project management support, with the current CIS specialist under the Executing Entity also undertaking a project management role in addition to his technical role; and following the gap in the project management function after the previous incumbent had left the project.

Delivery Partners:

CSIRO re-engaged from 1st July after a six-month absence due to travel restrictions and the prolonged delay in on-ground activities that are pre-requisites for their activities. Their main role will be to incorporate long term climate change projections to better inform individual sectors' climate information users. APCC, CSIRO and BOM have held in country missions since the opening of the borders to strengthen engagement with the team on the ground and plan their activities for the remainder of the project.

Bureau of Meteorology (BOM) continued to work with the Project Management Unit (PMU), VMGD and the sectors to (i) assist with data rescue and data homogenization, (ii) assist with Traditional Knowledge (TK) strategy, planning and implementing project activities, (iii) contribute to and refine sector workplans and project strategy documents, (iv) investigate user needs from sectors in climate monitoring and prediction information, and (v) revise and monitor production of Climate Bulletins for sectors. Close coordination with the Climate and Oceans Support Program in the Pacific (COSPPac), and the WMO Climate Risk and Early Warning Systems (CREWS) PNG, both BOM-lead regional / national Pacific projects, has leveraged work and learnings to inform Van-KIRAP activities including designing a Global and Pacific ACCESS-S website to disseminate sub-seasonal to seasonal (S2S) climate information, and exchanging learnings from COSPPac lead workshops, such as the Early Action Rainfall Watch and the ACCESS-S Regional Training workshop, which is beneficial to VMGD and five priority sectors. In the reporting period, a sector-focused workshop was conducted with Fisheries (11/10/2022); BOM, PMU, VMGD team and representatives from the sector discussed needs for climate monitoring and prediction products, and developed plans to implement activities on strengthening CIS. Scientific guidance with revising Tropical Cyclone Outlook for 2022-23 season and Climate Bulletin for Water has been provided. In terms of data homogenization activities, BOM submitted a review of the seven station datasets to be homogenised to VMGD. VMGD are currently responding to reviewer comments. BOM visited VMGD in November 2022 to assist VMGD with metadata collation and better understand data management in Vanuatu. BOM assisted VMGD with TK activities, including delivery of training, initial drafts of communication materials and standard operating procedures, and development and testing of an app to assist with TK monitoring. BOM also assisted with examining functionality of VMGD website and developing ToRs for its re-designing.

APEC Climate Center (APCC)

Progress has been made for Activity 1.2.6.1, APCC made a contract with an IT company to develop the 3rd phase of the OSCAR system (OSCAR-III) from 1 September 2022 to 31 August 2023 for a year. To fully hand-over the OSCAR system, the agreement has been made on intensive training course (APCC-invited program) for extension specialists. To easily reach out to other beneficiaries including local community such as school, church, women's and youth groups and provincial government, we designed and produced the leaflet on introduction of OSCAR. But, effective channels may need to be explored to widely disseminate the OSCAR system by ensuring 'no-one left behind'.

For Activity 1.2.6.2, Agro-met data were collected and analyzed. For meteorological data, the production of high-resolution daily maximum and minimum temperatures were fully completed, and pre-processing procedures were finished. For agricultural data, the phenological data (Cassava and Taro) have completely collected throughout experimental field trials at the DARD and VARTC sites from February to December, 2022.

Also, the digital pedological map have been being improved by focusing on completeness and usefulness. Meanwhile, as for two non-responsive agromet stations installed in the two field trials sites, one agromet station installed in Port vila will be replaced by APCC, the other one in Luganville will not going to be replaced by APCC, because new AWS including the function of collecting agricultural data were recently installed and replaced by National Institute of Water and Atmospheric Research(NIWA), New Zealanders

For Activity 1.2.6.3, the on-site training were provided both in Port vila and Luganville. Champions farmers were successfully identified for demonstration field trials, and the selected farmers are in the middle of conducting demonstration field trials.

For Activity 1.2.6.4, the CCD app and offline map have been improved by loading deep learning based crop weight estimation. The offline digital maps with geographical information for the CCD app are in the middle of developing. Also, The training programs were conducted with hand-on practices.

Delivered:

- Revising and monitoring production of Climate Bulletins for sectors (Fisheries, Tourism and Water)
- Sector-focused workshops with Fisheries to obtain user's perspective on value of Climate Bulletins
- Training of VMGD Climate Division staff in using tropical cyclone data portal and producing Tropical Cyclone Season Outlook
- Release of ClimateWatch Vanuatu app test version
- Training on TK monitoring (VMGD TK team) and forecast development and verification (Two sessions, one for VMGD TK team and one for other VMGD and Vanuatu government staff)
- Metadata collation workshop between BOM and VMGD in November 2022. Followed by BOM visiting MeteoFrance New Caledonia to determine the extent of Vanuatu data holdings there.

Progress in fisheries sector: Five ocean buoys has been deployed, and the focus in 2023 will be for the finalization of community management plans and community information sessions and activities using the data /information from the ocean buoys.

Progress in water sector: The land agreement has been signed with gauges, groundwater level loggers and automatic river gauges installed and operational. Data collection is being done both manually and semi-automatically. Additional telemetry capability will be added in 2023 to enable real time data streaming directly into cloud platforms and departmental databases. The development of the Flood Management Plan (FMP) and the Early Warning Systems (EWS) will be progressed through the 2023 work plan.

Progress in the agriculture sector: Maintenance of 3 demonstration plots in (a) Tagabe, Efate; (b) Vanuatu Agriculture Research Training Centre (VARTC) and in Sola, Torba; data collection and analysis, using climate information to adjust farm practices, and developing monthly AgroMet Bulletins has been ongoing.

Progress in the infrastructure sector: Robert Hardy of 7Dee Consultants is the successful bidder who has been contracted to review the Vanuatu Road Design Guide. Procurement for the drone with LIDAR capability has been completed, and both virtual and practical training has been completed for PWD staff, with two staff now fully certified as LIDAR drone pilots.

COVID-19 community transmission: The domestic and international border travel restrictions due to the COVID-19 community transmission in Vanuatu from 05 March 2022 greatly affected the implementation of activities, delaying progress. The domestic restrictions were gradually lifted from May 2022, and the international borders opened on July 2022, enabling the project team to progress outstanding activities again and delivery partners and SPREP to conduct in-country missions.

Staff turnover: Mark Kalotap, the identified Tourism Coordinator was not granted secondment by the Public Service Commission to join the project team early this year. This vacancy has left the tourism sector activities unprogressed for some time now. The acting Director of Tourism has agreed to a reduced scope of the planned Tourism activities, with in-house support during implementation from her staff. Nastashia Shing, the Fisheries Coordinator took maternity leave for 3 months, and she was temporarily replaced with Jayven Ham who worked hard to progress their activities as scheduled. David Gibson, the Community Engagement consultant left the project after completing the establishment of the 6 community climate centers. A Communications Officer also joined the Project in November.

GCF Project Integrity Review: The Project Integrity Review by GCF has been completed. Procurement for key CIS equipment has been removed from the Vanuatu government's central tender board process to SPREP's procurement process. This has enabled the successful procurement of some of the project equipment already.

Finance / procurement: Through a successful third-party bidder, the Vanuatu Auditor General has completed the VMGD Audit of Accounts for 2021. This has been overdue since March 2022.

Anticipated work in 2023: The focus will be on completing remaining procurement activities to enable the installation of CIS equipment and provision of consultancy services to progress scheduled activities, while simultaneously running climate information workshops, data collection activities, and community activities where possible.

Provide a narrative report describing the overall progress on the implementation of the funded activity, focusing on implementation achievements, delays, and challenges according to the planned activities. For project/programme with on-lending and equity investment into the projects or companies, kindly provide information on the projects/companies where such investment was made during the calendar year including the implementation status of the invested project or companies' operation. As relevant, include references to other sections of this report (including Annexes or Attachments). Include a description of key milestones of the funded activity achieved during this reporting year (for example, during 2022 only) including any deviations from original expectations. Also, describe challenges encountered and actions undertaken to resolve these challenges, and lessons learned during the

implementation, including issues related to non-compliance with GCF standards or conditions, if any. In parallel, include positive achievements and better-than-expected results. If any issues have arisen in the last twelve (12) months of implementation that may result in a change to the scope and/or timing of the project, please provide a description of those items and how they have impacted the implementation period and final targets. Kindly make sure that this section just gives an overall summary and doesn't have overlap with other sections.

2.2 Performance against the GCF investment criteria (summary)

Progress against the GCF investment criteria has been slow as stated in the 2021 APR. The past year, 2022, has advanced steadily to show improvement in some investment areas as outlined below. The project to date has focused its progress reporting towards collection of data /information and analysis to better reflect on these investment criteria.

Provide a narrative report describing the progress on the funded activity's performance against the GCF investment criteria framework. The performance should be compared against the initial assessment provided in the Board-approved Funding Proposal (section E). The list of the investment criteria as per the current framework is provided below. For each investment criteria outlined below, please include an assessment of current status, changes, progress and impact of the project as well as any impact of project context on the project during this reporting period against the initial baseline scenario and planned activities as per the assessment presented in the approved Funding Proposal. This sub-section 2.2 is not applicable for REDD+ Results-Based Payments Projects. Please write 'Not Applicable' as the response.

Relevant Links

[The GCF investment criteria framework](#)

2.2.1 Impact Potential ?

The project is well placed to respond to the Fund's Impact Potential, particularly under its adaptation impact; directly through the increase in generation and use of climate information in decision-making. Indirectly, and through the application of climate information through the project's CIS tools and services; there is potential to contribute to other indicators by increasing climate-resilient sustainable development under its Adaptation impact.

2.2.2 Paradigm shift potential ?

There is significant potential for a paradigm shift, and for scaleability and replicability of project outcomes, particular the sector specific approach to generation of climate information products and services. There is interest in pipeline investments under SPREP and other partners, to replicate this approach in other project countries. In terms of scaleability of project outcomes at the regional level, there is already consideration under pipeline investments for both the Weather Ready Programme (multi-donor), and the One Pacific Programme (GCF) and for project development under the Early Warnings for All initiative.

2.2.3 Sustainable development potential ?

Sustainable development potential of the project is embedded in its incorporation of traditional knowledge into climate information products and service delivery, which supports cultural preservation. Additionally, there are potential economic externalities in the anticipated positive impact of sector case studies on economic growth in the relevant project sectors.

2.2.4 Needs of the recipient ?

In addressing needs of the recipient, Vanuatu is well placed in terms of its vulnerability and risk to climate change (rated as one of the highest in the world); and through the generation of climate information, the project is directly supporting strengthening of institutional and implementation capacity to contribute to the country's social and economic development.

2.2.5 Country Ownership ?

Vanuatu's National Climate Change Disaster Risk Reduction Policy 2022-2030 provides the policy framework for climate change and climate investment, to which the project is well aligned. Both the Accredited Entity and Executing Entities have delivered many development projects in climate change. Given the community focus of the project, there is strong capitalisation of existing domestic governance systems in all project engagement at the community level.

2.2.6 Efficiency and Effectiveness ?

There is strong financial viability of the project in the longrun, with commitment by the Government on budgetary appropriations to support operation and maintenance of project infrastructure beyond the project term; and absorption of project personnel into Government institutions to ensure continued application of built capacities and ensuring long-term return on investment under this particular project. Industry best practices are reflected in the selection of infrastructure and innovations and their applicability to the project country/region; while traditional knowledge is well incorporated into the development of climate information products and services.

2.3 Project Outputs Implementation Status

Please note the below fields are mandatory but only a one-time activity. Please fill out the project output details regardless of any progress made so far, which will be auto-populated in the next APR and on wards.

Use 'Add Row' button to add multiple outputs and/or activities reported against one output

Project Output Name *

Output 1.1 Strengthened climate information services through improved data and interfaces

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.1.1: Improving the currency, functionality and visualization of climate data records for Vanuatu; Sub-activity 1.1.1.1. Update tropical cyclone and high-quality climate data for online Pacific Climate Change portals and VMGD centralised data management system (CLiDE).

Status

Activity started - progress delayed

Implementation Progress *

70

%

Original timeline planned for this activity *

Q4 2019 to Q4 2022

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period
Progress in 2022:

The project has produced a complete list of tropical cyclones which occurred in Vanuatu Tropical Cyclone Area of Responsibilities: 10°S, 160°E 10°S, 175°E & 23°S, 160°E, 23°S, 175°E from 1970-1971 to 2021-2022 tropical cyclone seasons. Furthermore, also produced a sub-set of tropical cyclone best track data for 2021-2022 tropical cyclone season based on data collected from the RSMC Nadi, Fiji. The list of tropical cyclones and the data were shared with the VMGD for examining and archiving. The new data is updated into VMGD's climate database CLiDE as well as the Southern Hemisphere Tropical Cyclone Portal, to allow VMGD and national end users to visualise historical tropical cyclones that has passed their area of interest.

The Australian Bureau of Meteorology (BOM) provided training on tropical cyclones to benefit the Vanuatu Meteorology and Geo-hazards Department staff who are responsible for the preparation of the tropical cyclone outlooks every year. The training was delivered on the 17-20 October 2022 and lead to the issuance of the 2022/2023 Vanuatu National Tropical Cyclone Outlook. The Vanuatu 2022/23 Tropical Cyclone Outlook is available here:

<https://bit.ly/3Nkxq9X> . Key messages for the public: <https://bit.ly/3sKk7pA>. Media release for the training is available - <https://www.sprep.org/news/training-prepares-vanuatu-climatologists-and-climate-officers-for-tropical-cyclone-season>

BoM examined data received from VMGD for Aneityum, Bauerfield, Lamap, Pekoia, Port Vila, Sola and White Grass. Review of these datasets sent back to VMGD in early November 2022 for further data verification. BOM visited VMGD in late November 2022 to assist VMGD with station history and metadata collation and review additional datasets that could extent the present time-series. BOM visited MeteoFrance New Caledonia to review Vanuatu data holdings there and obtain additional metadata for the seven stations with the objective to extend all Vanuatu time series to support the delivery of CIS for various audiences.

Issues/Challenges/Delays:

1. COVID-19 caused disruptions in international travel and for BOM to visit Vanuatu to provide training for VMGD. Virtual training/information sessions are somewhat ineffective.
2. VMGD does not have complete records and data of tropical cyclones for their Area of Responsibility (AoR). Data has to be sourced from the WMO Regional Specialized Meteorological Centre (RSMC) in Nadi, Fiji.

Reason for variation:

1. To allow more time to source complete high quality data from sources other than VMGD.
2. Funding disbursement delays from the Implementing Entity to VMGD in 2019 and 2020 and COVID-19 has caused delays to this activity.
3. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Providing regular refresher trainings for VMGD is required to ensure seamless capture of data, management and visualization of climate data.
2. VMGD has no Data Management and Governance Policy to guide the day-to-day functions pertaining to climate data records for Vanuatu.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Training planned for early 2023 both in person and on line. This activity will mostly be delivered as part of sub-activity 1.1.1.2. Once the data rescue and quality assurance is complete sub-activity 1.1.1.1 and 1.1.1.3 can be completed.
2. Final Data Quality Control/Data homogenisation: When BOM have received the revised/updated seven station time-series in early 2023, quality control analysis will take place, followed by data homogenisation.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.1 Strengthened climate information services through improved data and interfaces

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Project Activity 1.1.1: Improving the currency, functionality and visualization of climate data records for Vanuatu; Sub-activity 1.1.1.2. Digitise historic climate records, enter into CliDE and quality assurance

Status

Activity started - progress delayed

Implementation Progress *

60

%

Original timeline planned for this activity *

Q3 2019 to Q3 2020

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

The data digitisation, data homogenisation and quality control are contributing towards improving coverage, accuracy and quality of climate and weather data and information for the development of CIS tools and to ensure compliance with QMS accreditation prerequisites. The output from this work has been instrumental in updating the climate database (CLiDE) enabling VMGD to provide up-to-date, accurate, historical records in response to climate data requests and to enable the data to be incorporated into the climate seasonal forecast bulletins, CLEWS and the climate projections. The resulting dataset is also to be used for the analysis of WMO Climate Extreme Indices that include historical information on rainfall and temperatures extremes, and drought indices to inform sector-specific decisions.

Key milestones and deliverables for 2022 as per APR2021

1. The completion of the quarterly rainfall and temperature quality control checks for all six stations and data updated into the CLiDE for January to December 2023.
2. The initial set of 30 years of data from relevant stations is to be provided to BOM to enable the homogenisation work to commence.
3. Data quality control, data storage and archiving on all six stations to be completed
4. CLiDE database updated with 100% of the data
5. Data gathered from the new project observational equipment i.e. ocean buoys, AWS, ARGs to be uploaded into the CLEWS and made available for use in CIS tools and information products e.g., the climate bulletins
6. VMGD received training from BOM on data rescue, quality assurance (including the use of VMGD's climate database system CLiDE).

Progress in the reporting period, 2022

1. Quality control checks for Aneityum, Bauerfield, Lamap, Pekoa, Port Vila, Sola and White Grass stations for past 30 years completed and updated into the CLiDE database.
2. All daily and monthly Rainfall, Max Temperature and Min Temperature data (30years of data from all six stations) have been sent to BoM on the 01 April 2022 for the data homogenisation process via RHTest.
3. The Quality Control for observational data for the period January to December 2022 for all six climate stations completed and available in CLiDE database.
4. CLiDe database was updated to include enhanced "Stage 1 quality control" functionality. This means all data entered into the data base not within specified tolerance ranges will be assigned either a suspect or error flag. Later in 2022 a second update will take place which includes Stage 2 quality control which involves the data being passed through a series of quality checking algorithms within 24 hours of entering the database. All data will be assigned a quality flag. Where a suspect flag is recommended a 'suspects list' will be presented to the quality control officer at VMGD for verification.
5. The data from the projects observational equipment i.e. ocean buoys, AWS, ARGs, Automatic River Gauge feeds into the production of VaCSA (now called OSCAR) -see Activity 1.2.6, CLEWS and seasonal climate forecasts for sectors eg Agromet bulletin - <http://www.vmgd.gov.vu/vmgd/index.php/climate/reports-and-summaries/agromet-bulletin>; Tourism Climate bulletin - <http://www.vmgd.gov.vu/vmgd/index.php/climate/reports-and-summaries/tourism-climate-outlook> and the Fisheries Climate bulletin - <http://www.vmgd.gov.vu/vmgd/index.php/climate/reports-and-summaries/fisheries-climate-outlook> no name a few.
6. Remote support and technical assistance from BOM is ongoing for efforts towards data rescue, data quality assurance functionality in CLiDE database. VMGD received training (Regional Training delivered virtually) from BOM on data rescue, quality assurance (including the use of VMGD's climate database system CLiDE). Face to face CLiDE database training for VMGD is required especially with regards to the new modules and functionalities BOM has recently introduced to CLiDE.
7. VanKIRAP Internship Program has recruited university students to input historical climate observations into the CLiDE database. Eight students were part of the program and have received training from VMGD and BOM. The program continue to increase the increase and extend the data time-series for key climate stations for Vanuatu. As a result of this activity, new climate data is now available in electronic version for the development of seasonal climate forecasts, research and improving the understanding of current and future climate of Vanuatu.
8. The VanKIRAP data digitisation program through the use of the new A3 Bookeye Scanner has allowed VMGD to convert large volumes of paper records to digital formats (eg jpeg and png). The program has rescued more than 40% of Vanuatu's climate field books from being lost permanently due to climate and conditions they have been stored in the past.

Issues/Challenges/Delays:

1. COVID-19 lockdown caused delays in advancing this activity.

Reason for variation:

1. Funding disbursement delays from Implementing Entity to VMGD and COVID-19 lockdown paused the activity for months. Resuming only after lockdown.
2. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Virtual CLiDE training delivered by BOM via zoom was not well attended by VMGD. Not all staff have the facilities at home to connect to the virtual training.
2. The VanKIRAP Internship Program is a huge success, but due to funding constraints, the program will end in December 2022.
3. The VanKIRAP data digitisation program has rescue large volumes of data and should continue until all existing records are converted into digital format. Paper records will then have a backup in digital format and in CLiDE database.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Follow up online and in person training will be provided in 2023 with an emphasis on delivering and completing sub-activity 1.1.1.2.
2. All training and support provided is following WMO best practice guides on data rescue and quality assurance to ensure Vanuatu has updated and high quality data records.
3. Data digitisation and data rescue efforts to continue to December 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.1 Strengthened climate information services through improved data and interfaces

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.1.1: Improving the currency, functionality and visualization of climate data records for Vanuatu; Sub-activity 1.1.1.3. Updated standardised WMO climate extreme indices

Status	Implementation Progress *
Activity started - progress delayed	40 %

Original timeline planned for this activity *

Q3 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

The activity will upgrade the Vanuatu climate extremes components hosted on the Pacific Climate Change Data Portal and with the new data new climate extreme indices tailored for each sector is developed to detect climate change variations. The new homogenised data updates all relevant to climate extreme indices are updated and available for Vanuatu.

Progress in 2022:

1. As part of improving the currency, functionality and visualisation of climate data records for Vanuatu, once the records have been digitised, extending the records available, WMO climate extreme indices will be calculated which will provide information on variability and change of climate extremes (rainfall and temperature) in Vanuatu. Following WMO best practice, this will be done for stations with long enough records and in key areas for the five priority sectors.
2. VMGD through Sub-activity 1.1.1.2. Digitise historic climate records, enter into CliDE and quality assurance, has generated and shared with BOM data from Aneityum, Bauerfield, Lamap, Pekoa, Port Vila, Sola and White Grass stations for past 30 years up to 2022. In October 2022, BOM completed the verification of the data provided by VMGD. During the reporting period, the Port Vila, Bauerfield and Aneityum extremes indices were updated to 2022 based on the recent data update (see Sub-activity 1.1.1.2. Digitise historic climate records, enter into CliDE and quality assurance). This is an update of the raw and older homogenised time-series only. The homogenised time-series will need to be re-checked and extremes indices reproduced in 2023.

Issues/Challenges/Delays:

1. Training for VMGD was not possible due to COVID-19 and travel restrictions placed on BOM staff.
2. This activity is dependent on availability of BOM staff, as is Sub-activity 1.1.1.2. Digitise historic climate records, enter into CliDE and quality assurance
3. BOM staff responsible for this activity are also working on the Climate and Ocean Support Program for the Pacific (COSPPac).

Reason for variation:

1. This activity can not progress significantly due to Sub-activity 1.1.1.2. Digitise historic climate records, enter into CliDE and quality assurance.
2. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. It was more effective to out-source this work to an independent supplier/contractor rather than through BOM. Competing priorities with BOM/COSPPac project activities.
2. There needs to be absolute clarity from the Implementing Entity on what is required to meet conditions, to avoid excessive measures being placed on the Executing Entities.
3. Given the technical nature of this project, the Implementing Entity function within the Accredited Entity should have been open to expertise from its relevant technical programme, and not isolated within its project coordination function.
4. More effective dialogue with the country was required, to understand its land tenure systems; national ESS and other systems such as its budget/financial system; in order for effective IE guidance on setting project conditions (by the Fund) and addressing project conditions (by the IE).

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Reproduce the homogenised time-series for Port Vila, Bauerfield and Aneityum stations using new available data.
2. Develop WMO climate extreme indices for rainfall and temperature in Vanuatu.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.1 Strengthened climate information services through improved data and interfaces

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.1.2: Building and strengthening user interfaces to support CIS Decision-making; Sub-activity 1.1.2.1. Upgrade VMGD IT platform including computing hardware and software

Status

Activity started - progress delayed

Implementation Progress *

70

%

Original timeline planned for this activity *

Q3 2020 to Q4 2020

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones for 2022 include:

1. All ICT equipment to be procured, portals (VaCSA, Vanuatu Climate Futures/VanKIRAP Portal) to be uploaded and tested.
2. The VMGD website and mobile app to undergo a major review and upgrade to improve function.

Progress in 2022 to above milestones

1. The VMGD IT platform and the newly refurbished maintenance storage facility is now fully functional and utilized. The equipment for the VMGD IT platform was supplied and installed. The refurbished archives storage room will maintain an optimum temperature to enable the long term storage of archived data, and it is also compliant with health and safety standards for staff working with the archived data.
2. The beta version of the Vanuatu Climate Futures/VanKIRAP Portal was installed and tested in October 2022. The final version of the Vanuatu Climate Futures/VanKIRAP Portal will be launched in the second half of 2023.
3. The first iteration of the Vanuatu Climate Services for Agriculture (VaCSA/OSCAR) was user tested by APCC and VMGD ICT and Engineering Division. APCC validated the technical specifications of the servers for the hosting of the Vanuatu Climate Services for Agriculture (VaCSA/OSCAR)
4. The terms of reference and technical specifications for the VMGD website upgrade and mobile app is complete and now undergoing internal approval. The procurement of the service provider to undertake the upgrade of the VMGD website will take place in Q1-Q2 of 2023.
5. The Sarakata Flood Management Plan and Early Warning System Public Dashboard is fully functional and utilised by VMGD, Department of Water Resources (DoWR), National Disaster Management Office (NDMO), Public Works Department and other sector users. Public Dashboard is available here: <https://public.eagle.io/public/dash/c591gs61b7nimkf>
6. The development of the CIS platform that will display the data and information from the ocean buoys monitoring network eg SOFAR Spotter buoys and sensors is underway. API data from the SOFAR Cloud services will transmit data to the CIS platform when complete in 2023.

Issues/Challenges/Delays:

1. Bottleneck in the Government of Vanuatu procurement process and COVID-19 impact on procurement, hence the equipment for the VMGD IT platform from supplier arrived late.
2. IT/Web Applications Specialist from BOM was requested to support VMGD in the development of the detailed Terms of Reference based on the detailed Scope of Works (SoW) developed by the PMU.
3. The Executing Entity was not able to progress the website upgrade and mobile app tender, the Implementing Entity required the Communications Strategy to be completed first to mainstream all communications and outreach activities for the project.

Reason for variation:

1. Activity on hold, awaiting the completion of the VanKIRAP Communications Strategy. The first draft Strategy was produced by the Communications Consultant in September 2022. The recruitment of the Communications Consultant was completed in December 2021, the Communications Coordinator started work in January 2022. There was therefore a period of at least nine months to deliver on this work.
2. The installation of the CIS platform is dependent on the completion and delivery of the Vanuatu Climate Services for Agriculture (VaCSA/OSCAR) by APCC; the Vanuatu Climate Futures/VanKIRAP Portal by CSIRO and NGIS.
3. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Better coordination is required, for alignment and timing of activities.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Install the VaCSA/Crop Climate Diary-CCD, Vanuatu Future/VanKIRAP Portal, SOFAR Ocean Buoy Dashboard and the Sarakata Flood Management Public Dashboard on to the newly refurbished facility.
2. VMGD website to undergo a major upgrade and improve cosmetics on the front-end to increase the accessibility and uptake of CIS.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.1 Strengthened climate information services through improved data and interfaces

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.1.2: Building and strengthening user interfaces to support CIS Decision-making; Sub-activity 1.1.2.2. Technical support for VMGD in developing CLEWS-based software application development and ground-truthing CLEWS and outreach to Next/End-Users

Status	Implementation Progress *
Activity started - progress delayed	50 %

Original timeline planned for this activity *

Q3 2019 to Q3 2020

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Milestone for 2022 as per 2021APR:

The BOM will continue to provide technical support and information to VMGD (in consultation with project management) to ensure the project is supported in the delivering of range of activities

Progress in 2022

An IT expert from BOM visited VMGD in December 2022 . PMU requested assistance from BOM IT to help VMGD/VanKIRAP with developing a technical specifications for a new VMGD website (see Sub-activity 1.1.2.1: Upgrade VMGD IT platform including computing hardware and software). The new website will replace the current site <https://www.vmgd.gov.vu/vmgd/index.php>. During IT expert visit to VMGD, extensive discussions were carried out with VanKIRAP PMU, VMGD IT colleagues, Climate Division, Weather Forecasting Division etc. A comprehensive report and Terms of Reference (ToR) for re-designing VMGD website has been produced.

BOM continue to provide key technical support and information to VMGD (in consultation with project management) to ensure the project is supported in the delivering of range of activities. Initially this included providing IT specs to delivery partner's on the VMGD's climate data management system CliDE. To support VMGD long term capability there was a need identified to uplift ICT capabilities. The BOM provided it's experts to asses VMGD requirements and current ICT capability to identify needs and gaps and how to address these to ensure VMGD has a fit for purpose ICT capability able to support Climate Information Services.

The report provides recommendation for different ICT areas ranging from upstaffing, utilisation of cloud technologies, training, observations, automation, documentation of services and processes as well as hardware requirements. It was agreed with VMGD that the BoM will provide technical support under project activity 1.1.2.2 on VMGD's request when required.

The CLEWS-based software application CLiDEsc updated with new Climate Information Products and services. The new products now available on CLiDEsc will feature on the new version of the VMGD website and mobile app in second half of 2023.

Issues/Challenges/Delays:

1. Competing priorities between VanKIRAP and BOM/COSPPac activities where BOM experts are not available. Budget for this activity is under the BOM component.
2. COVID-19 disrupted the implementation of activities and opportunity for in person engagement with national stakeholders.

Reason for variation:

3. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.
6. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Lessons Learned:

1. Re-allocation of budgets from BOM to SPREP or VMGD so that activities can be progressed through external consultants.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Support VMGD in the upgrade of the VMGD website and delivery of CLEWS.
2. Upgrade CLEWS-based software application CLiDEsc with new climate maps on precipitation (rainfall), temperature, El Niño, La Niña and ENSO neutral.
3. Upgrade CLEWS-based software application CLiDEsc with operational climate maps for monitoring rainfall, droughts for the past 30, 60, 90, 180 and 360 days (updated daily).
4. Provide training for VMGD and sectoral users on CLEWS-based software application CLiDEsc user interfaces to increase uptake of CIS and decision making.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.1 Strengthened climate information services through improved data and interfaces

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.1.2: Building and strengthening user interfaces to support CIS Decision-making; Sub-activity 1.1.2.3. Vanuatu Climate Futures portal for delivery of climate change projections

Status

Activity started - progress on track

Implementation Progress *

60

%

Original timeline planned for this activity *

Q3 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones for 2022 as per 2021APR:

1. Release of the initial version of the Portal for end-user testing and feedback
2. Once CSIRO re-engage with the project, the Portal will be updated with further CIS information and data, including from the initial end-user feedback.
3. Portal to be fully updated and publicly realised in Q4.

Progress in 2022:

1. The beta version of the VanKIRAP Portal (Vanuatu Climate Futures Portal) was released during the 10-14 October 2022 mission. CSIRO and NGIS provided portal awareness and information sessions for the Vanuatu Meteorology and Geo-hazards Department (VMGD), Vanuatu Fisheries Department (VFD), Public Works Department (PWD), Department of Tourism (DoT), Department of Water Resources (DoWR), the National Advisory Board (NAB) Secretariat and other stakeholders. Portal CIS data activities during the reporting period: (I) Road Infrastructure o Cleaning of road network dataset (a) Creation of road network data model (b) Processing of data into road network model (c) Delivery of Vanuatu Road Network Geodatabase (II) Fisheries sector data (a) Evaluation of marine habitat datasets (b) Ingestion of Allen Coral Atlas – geomorphic zonation (c) Ingestion of Allen Coral Atlas – benthic composition; (d) Ingestion of Allen Coral Atlas – reef mask (III) Agriculture sector data (a) Sourcing of Agriculture maps for Vanuatu (pdf format)

VanKIRAP Portal/Vanuatu Climate Future Portal can be accessed at: <https://van-kirap.ts.r.appspot.com> Username: test Password: vanKirap123

2. CIS information and data on new climate change projections for Vanuatu up to 2100 for a precipitation, temperature are now available on the VanKIRAP Portal for initial end/next user feedback and application in decision making and resilient development actions.

Issues/Challenges/Delays:

1. The 6-month pause in CSIRO's work (due to the delay in the approval of the project extension in 2021) impacted the development of the Vanuatu Climate Futures/VanKIRAP Portal.
2. COVID-19 impacted the delivered of on the ground CIS data portal and engagements with stakeholders.
3. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
3. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. The PMU and CSIRO turned to virtual teleconferencing for training webinars to be conducted for national stakeholders in Vanuatu, which was an alternative to progress delivery in the midst of COVID19 impact.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Release of the V2.0 of the VanKIRAP Portal.
2. Update the Portal with further CIS information and data, based on feedback from sectoral users.
3. Additional awareness and information sessions for end-users and sector stakeholders.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.1: Upgrading and expanding the Vanuatu observational networks; Sub-Activity 1.2.1.1. Enhancing stream monitoring capabilities in the Sarakata River catchment

Status

Activity started - progress delayed

Implementation Progress *

60

%

Original timeline planned for this activity *

Q2 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones for 2022 as per 2021APR:

1. Finalise the land agreement and commence installation of the automated river gauge (ARiG).
2. Data from automated river gauge (ARiG) to be uploaded into the VMGD portals and demonstration of use in CIS e.g., Climate Bulletins, and inclusion into the Flood Management Plan.

Progress in 2022:

1. Land agreement signed. VanKIRAP installed an automated river gauge (ARiG) 10 km upstream of Luganville in September 2022. This is the first automated hydrological monitoring undertaken on the river. The gauge reports the river level, river discharge, rate of rise, rainfall total, rainfall intensities and other parameters at five-minute intervals and transmits data via mobile phone network, with satellite redundancy if the mobile network goes down. Data from the station are transmitted to the Vanuatu Meteorological and Geohazards Department (VMGD) for monitoring. The data are also available publicly on a dashboard website: <https://public.eagle.io/public/dash/c591gs61b7nimkf>
2. Groundwater monitoring loggers have been installed around the Sarakata river around Pepsi, Luganville area. The new groundwater monitoring network allows the Department of Water, The Samna Provincial Government through the Water Committee to monitor the rate of change, salinity, pH parameters between the various location within the Sarakata Catchment for CLEWS.
3. Staff gauges for monitoring the Sarakata river level and height/intensity of flooding events and surface water installed in strategic locations along the river bank in July 2022. One staff gauge has been installed in the same location as the automatic river gauge for calibration of the automatic system. Data collection by DoWR staff based in Luganville in Santo.
4. The training workshop for VMGD and Department of Water Resources (DoWR) on the automatic river gauge (ARiG) operation, maintenance, calibration and upkeep was conducted the training in August 2022. Ten (10) project staff from VMGD and DoWR received training from the supplier.
5. Data from groundwater loggers are currently downloaded manually and upload to the DoWR TIDEDA database for storage, archive and retrieval. The telemetry elements for the groundwater sensors are to be installed in Q1 2023. The Consultancy contract to develop the Flood Management Plan (FMP) has been signed with the FMP to be completed in mid 2023.

Issues/Challenges/Delays:

1. The groundwater loggers data are collected manually through onsite data loggers. DoWR requested the PMU to automate the data capture and communication of the data using telemetry capability, similar to the automatic river gauge (AR)
2. COVID-19 lockdown delayed the arrival of the Australian-based supplier of the automatic river gauge (ARiG) to install the equipment. The finalisation of the land agreement was also impacted due to travel bans to the outer islands including Santo - the river gauge location. The finalisation of the land agreement by the Vanuatu State Law Office was impacted by COVID-19 lockdown.
3. The COVID-19 situation globally has caused the Vanuatu government customs department to no longer waive the Customs clearance fees for government projects. This has incurred extra costs for the project budget not earlier anticipated and planned for.
4. VMGD/DoWR was not able to progress the procurement of the consultant to development of the Sarakata Flood Management Plan and Early Warning System. The SPREP Executing Entity stepped in to facilitate the procurement through the SPREP Procurement process.
5. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
3. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. The SPREP Procurement process is more efficient for the facilitation of large procurements eg automatic river gauge, automatic weather stations and weather radar; and was an accommodative measure and alternative to utilising the Government of Vanuatu's procurement system

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Flood Management Plan to be finalised and incorporates data from the ARiG and groundwater monitoring sensors.
2. Upgrade the groundwater sensors with telemetry capability
3. Sarakata Flood Management Plan simulation exercise with national and provincial stakeholders and official launch.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.1: Upgrading and expanding the Vanuatu observational networks; Sub-Activity 1.2.1.2. Ocean monitoring for CLEWS enhancement and inundation modelling

Status	Implementation Progress *
Activity started - progress on track	80 %
Original timeline planned for this activity *	
Q4 2020 to Q4 2021	
Please refer to the Implementation Timetable in the log-frame	
Progress for the relevant reporting period	
<p>Key milestones for 2022 as per 2021APR:</p> <ol style="list-style-type: none"> 1. Installation of ocean buoys by end of Q2 2. Installation of the sensors when available. 3. Upload of data into CIS e.g. Ocean Bulletin. <p>Progress in 2022:</p> <p>1. Five of the six buoys installed and operational. The sites include (i). Ifira island, Port Vila, Efate island (Shefa Province), (ii). Lonnoc/Hog Harbour, Santo island (Sanma Province), (iii). Million Dollar Point, Santo island (Sanma Province), (iv). Mystery island (Tafea Province), and (v). Port Resolution, Tanna island (Tafea Province). One buoy is defected - a replacement to arrive in Q1 2023 and will be installed in Malekula island (Malampa Province). The project consulted with the Provincial Area Administrators and Secretary Generals to brief them on this new development and to seek community support and safeguard of the equipment. Community consultations and information sessions were conducted by Vanuatu Fisheries Department to create community awareness.</p> <p>On October 1st to October 8th 2022, two spotter buoys were deployed in TAFEA province. One was deployed in Mystery island (Aneityum) and the other was deployed in Port Resolution (Tanna). Community awareness on spotter buoys was also conducted with the Anelcauhat (Aneityum) and the Port Resolution (Tanna) communities. The awareness included information on why VMGD, CSIRO and VFD through the VanKIRAP project chose Aneityum and Tanna as deployment sites; the main purpose of the buoy; and also the compliance, monitoring and maintenance of the spotter buoys. 2 RBR data loggers were also deployed in the two sites.</p> <p>On the 19th of October 2022, the Fisheries sector coordinator organized for a Fisheries officer to travel out to Ifira island on Efate and clean out the biofouling under the buoy that had been deployed there since 14th June 2022. The solar panels and the SST sensor were cleaned to ensure that the buoy captures maximum sunlight for power and collects correct data.</p> <p>At the end of Q4, 5 of 6 SOFAR wave buoys installed and reporting data to VMGD via the SOFAR portal on cloud.</p> <p>2. The five installed buoys are operational and data available to VMGD and Vanuatu Fisheries Department through a SOFAR portal. Data from the project ocean buoys updated hourly, are designed to measure sea surface temperature, wave direction and height, wave period or spread, as well as wind speed at each location and direction. The data collected from the newly installed buoys will complement the Tide Gauge and Sea Level monitoring infrastructure already in place. Furthermore, ocean monitoring for CLEWS enhancement and validation of inundation modelling that is performed by Delivery Partner CSIRO (see Activity 1.2.3: Activity 1.2.3: Long-term projections for key climate variables and climate extremes for Vanuatu and 1.2.4: Activity 1.2.4: Risk-based coastal and other climate hazard analysis and mapping)</p> <p>3. Training for Vanuatu Fisheries Department (VFD), VMGD and the PMU on the ocean buoys and pre-deployment measures was undertaken in March 2022. The training was well attended by more than 15 technical staff and helped prepare the project team in the deployment of the new equipment.</p> <p>4. Data currently are stored on cloud via the SOFAR portal awaiting the IT platform equipment at VMGD to be installed completely. Installation to be completed in Q2 2023. Vanuatu Ocean bulletins are issued monthly and can be accessed on the VMGD website for end users - http://www.vmgd.gov.vu/vmgd/index.php/climate/reports-and-summaries/vanuatu-ocean-outlook</p> <p>Issues/Challenges/Delays:</p> <ol style="list-style-type: none"> 1. The faulty ocean buoy was not logging sea surface temperature (SST) data crucial in the monitoring of marine heat waves and coral bleaching. Buoy to be replaced with new unit, delay the deployment of the buoy for the Malekula site, Malampa Province. 2. The mooring and anchoring materials from the supplier was received late due to COVID-19. The project team was only able to collect the materials 3 weeks after the COVID-19 lockdown lifted in Port Vila, Vanuatu. The outer islands was still under lock down due to low vaccination rates. 3. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned maintenance visits to the ocean buoys in Santo and Mystery island. <p>Reason for variation:</p> <ol style="list-style-type: none"> 1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions. 2. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities. 3. Delay in the approval of the 2021 project extension and confirmation of funds for 2022. <p>Lessons Learned:</p> <ol style="list-style-type: none"> 1. New ocean data streams from the ocean buoys has improved the understanding of Vanuatu's oceans and impact of extreme events eg cyclones in Vanuatu's Area of Responsibility. 2. The weather forecasts and marine alerts issued by VMGD are validated using data from the five operational ocean buoys provided by VanKIRAP. 	
Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.	

Key milestones and deliverables for the next reporting period

1. Install the sixth buoy and ensure that its operational and linkup to the VMGD Portal
2. Official launch of the Vanuatu Ocean Monitoring Network.
3. Complete the installation of IT equipment at VMGD and ensure that communication with the buoys are established and data can be downloaded automatically.
4. Continue to issue monthly Vanuatu Ocean bulletins to meet sector demands and user needs.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.1: Upgrading and expanding the Vanuatu observational networks; Sub-Activity 1.2.1.3. Expanding Vanuatu's rainfall monitoring system

Status

Activity started - progress delayed

Implementation Progress *

55

%

Original timeline planned for this activity *

Q4 2020 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones for 2022 as per 2021APR:

1. Finalise the procurement process and install the AWS and ARGs.
2. Establish the interface between the AWS and VaCSA.
3. Incorporate the data into CIS e.g., Climate Bulletins, Agro-Met Bulletin, Flood Management Plan

Progress in 2022:

1. Procurement concluded and all AWS and ARGs delivered to Vanuatu. The equipment arrived in country at the end of November, 2022. In December, a team went to Santo to install 3 stations. Out of the 16 sites selected, 4 are under customary ownership, while the remainder are owned by the government or respective provincial authorities. The team also visited the 4 sites and re-negotiated and confirmed the availability of the sites to be used, before installation can take place. The 12 sites owned by the government have been negotiated with the Department of Local Authorities and approval is in place for the sites to be used. The National Institute of Water and Atmospheric Research (NIWA) entered into a service agreement with SPREP/VanKIRAP. NIWA with support from VMGD Engineering Division completed the installation at three of the sixteen sites completed in December 2022. The new automatic weather station locations include (a). Vanuatu Agriculture Research Training Center (VARTC), Santo island (Sanma Province), (b). Sarakata Hydro site, Santo island (Sanma Province), and (c). Nalema (Sanma Province).

The remaining 13 sets will be installed in Q1 of 2023. Once the 16 units become operational, they will be streaming new data to support VMGD's early warning services and forecasting services. The ICT team comprising 4 staff members are expected to undertake factory training in New Zealand after which, installation of the equipment will take place over Q1 and Q2 of 2023. The equipment have telemetry capabilities and they will enable VMGD to access real time data from different sites around Vanuatu that will inform early warning into communities through information about tropical cyclones.

Currently, there are already 8 AWS sites under VMGD's care, and the new sites will bring the total of automatic weather stations (AWS) to 24 across the country. There are also already 50 manual rainfall collection sites around Vanuatu, and the 8 new sites will have automated collection of data with livestreaming of data to fill in observation gaps in areas where observation is absent and improve data and understanding of Vanuatu's rainfall patterns.

2. Interfaces of the AWS and VaCSA to be established in 2023.
3. No data to be incorporated in to CIS at this point.

Issues/Challenges/Delays:

1. The AWS/ARG procurement through VMGD has been slow and did not complete, although the tender process was closed in October 2021. SPREP Executing Entity was requested by VMGD to facilitate and complete the procurement through SPREP.
2. Interface with VaCSA/OSCAR is dependent on the ICT Platform to be in place and operational refer to (Activity 1.1.2: Building and strengthening user interfaces to support CIS Decision-making; Sub-activity 1.1.2.1. Upgrade VMGD IT platform including computing hardware and software).
3. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
3. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Large project procurements to be processed through SPREP. Capacity in the VMGD Executing Entity makes it difficult to navigate the Government of Vanuatu procurement process. A procurement officer and support is needed for VMGD to process procurements in a timely manner.
2. Site preparation for the remaining 15 sites is required, VMGD Engineering team to travel in advance to organise local labour, sand, water and shipment of equipment to installation sites.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Complete installation of AWS and ARG in the 13 sites
2. Interfaces established with all 16 sites and VaCSA/OSCAR and CLEWS/CliDEsc platforms
3. Data from AWS and ARG successfully incorporated in to CIS.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.1: Upgrading and expanding the Vanuatu observational networks; Sub-Activity 1.2.1.4. Expanding Vanuatu's EWS capability

Status	Implementation Progress *
Activity started - progress delayed	45 %
Original timeline planned for this activity *	
Q4 2020 to Q4 2021	
Please refer to the Implementation Timetable in the log-frame	

Progress for the relevant reporting period

Project made notable progress in addressing all GCF conditions on the Radar. These are summarised below with references to Annexes as per Radar report

Financing component:

1. Budget submission from Ministry of Climate Change Adaptation, Geohazards, Meteorology and Energy to the national budgetary process as per the Vanuatu Public Finance and Management Act (Cap 74). Please reference table 1 page 2 of the budget submission budget ID 23A187 – Annex 1.

2. Letter from Minister of Finance to the Minister of Climate Change confirming the commitment of the required funding – Annex 1.

Please note that the current project budget for the Radar is USD 2,053,367 and the Vanuatu Government co-financing is USD 595,100. The co-financing of USD 595,100 has been introduced to the national budget process as the Weather Radar New Policy Proposal (NPP) – reference Annex 1a.

On the Budget details:

- Hardware procurement – the expression of interest (EOI) process has provided a cost range of USD 1.4m to USD 2.8m.
- Any additional costs for the hardware not covered by GCF (will be available under the procurement process where full costs will be revealed)
- Any additional costs for installation and operations of the radar e.g., roadworks, site works, internet connectivity, VMGD ICT capability, etc., reference request submitted to the national budget process, total of USD 595,100.
- O&M for life of equipment (reference updated O&M below)

Operation and Maintenance Plan:

Operations and Maintenance Plan for the Radar (updated) – Annex 2. Please note that the required funds for the ongoing O&M relies on the above-mentioned submission to the national budget process.

Land Agreement:

Letter from Minister of Lands and Natural Resources to acquire the required land for the Radar as per Section 4(1) of the Land Acquisition Act (Cap 215) – Annex 3. A map of the land is provided in Annex 3.

At the time of this report, it has been confirmed that the process is at Schedule 3 (of a 5-Schedule process), public notice issued. This schedule lapses on 16 February. Schedule 4 will commence thereafter for 30 days with Schedule 5 to formally have a final offer from Government. The process concludes with a Ministerial order to formally acquire the land for public use – reference Annex 1a.

Request for Tender package:

The draft Request for Tender (RFT) is enclosed (includes ToR and technical specifications) – Annex 4.

The RFT will be approved within the SPREP process prior to be advertised.

- Map is as provided above.
- Land acquisition details, as provided above.
- EIA Report – enclosed, Annex 5.
- Geotechnical Assessment Report enclosed, Annex 6.

Environmental Impact Assessment:

EIA Report and Environmental Permit enclosed.

Cost Benefit Analysis:

Provided earlier to the GCF, Annex 7

Demonstration of at least five suppliers:

EOI Report with assessment of bids enclosed. Summary: 9 respondents to the EOI with 5 selected as potential suppliers – Annex 8.

Environmental and Social Safeguards:

ESMP enclosed – Annex 9.

EIA Report and Environmental Permit enclosed

Geotechnical Assessment Report enclosed.

Issues/Challenges/Delays:

- a. SPREP Implementing Entity has submitted to GCF the ESMP plan without approval of SPREP and the Technical Working Group (TWG) and the Project Steering Committee (PSC).
- b. The ESMP recommends the project be re-classified as Category B, however the ESMP and recommendations has not been approved by the project Technical Working Group (TWG), the project Steering Committee.
- c. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
3. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. The feasibility studies such as the Cost-Benefit Analysis, Geo-technical surveys, Environmental Impact Assessments, ESMP and Environmental Social Safeguards should have been finalised in the preparation phase of the project; and it is inefficient to impose additional updates during implementation of the project as this deviates from actual project implementation.

2. The construction, commissioning of the weather radar will require at least 9-11 months. The project will need to request a no-cost extension to accommodate for the completion of the weather radar activity - a top priority of the Government of Vanuatu, endorsed at the highest level of Government i.e Council of Ministers (COM).

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Procurement for the Radar commenced in Q1 2023
2. Procurement completed and turn-key contract awarded
3. Equipment shipped to Vanuatu and installation commenced.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.2: Improved utility and function of seasonal climate forecasts; Sub-activity 1.2.2.1. Develop new seasonal impact forecasts for priority sectors

Status

Activity started - progress on track

Implementation Progress *

60

%

Original timeline planned for this activity *

Q4 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestone 2022 as per APR2021:

Future work will include sourcing user requirements from the five priority sectors and aligning them to the capabilities to progress the prototyping and development of new impact based forecasts.

Progress in 2022:

1. Delivery partner BoM, together with PMU and VMGD, monitored performance of ACCESS-S (climate prediction model) products used for preparing Climate Bulletins and impact based forecasts. Evaluating the products on monthly basis, it was concluded that they accurately reproduced spatial and temporal distribution of rainfall, temperature, SST, SSH over Vanuatu reflecting evolution of the 2021-2022 La Niña.
2. Training of VMGD Climate Division staff in using tropical cyclone data portal and producing Tropical Cyclone Season Outlook has been conducted. The whole VMGD Climate Division participated in the training, 70% males and 30% females. Lessons learnt from the training was shared with the Pacific community - the story was published on the SPREP website <https://www.sprep.org/news/training-prepares-vanuatu-climatologists-and-climate-officers-for-tropical-cyclone-season>
3. Training in using WMO GPC LRFs Portal has been also conducted. As a result of these two training sessions, capacity of Climate Division staff has been built.
4. To support the VMGD Seasonal Forecasting team with the delivery of new seasonal impact forecasts for sectors, the PMU has organised a monthly co-production meeting between VMGD, BOM and sector coordinators to validate and confirm on the content (key messages) on the bulletins before they are released to the public via the VMGD website and email/social media.

Issues/Challenges/Delays:

1. Seasonal forecasts will require the updated climate data records to integrate with the seasonal forecast and provide localised information thus this activity is dependent on the delivery of activity 1.1.1.
2. In-country visits and engagements with national stakeholders were limited due to COVID-19.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. One of the seasonal climate forecasters will be on maternity leave early 2023, and VMGD will require additional support from BOM to continue the delivery of the seasonal impact forecasts for sector users. It is important to anticipate and plan ahead of time (or incorporate contingency measures) for staff turnover, and limited capacity already existing within VMGD.
2. Face to face and in person training delivered by BOM for VMGD is more effective and must continue where possible and increase in 2023. This will increase the capacity of VMGD and for the sustainability of the delivery of seasonal impact forecast service.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Future work will include sourcing user requirements from the five priority sectors and aligning them to the capabilities to progress the prototyping and development of new impact based forecasts.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.2: Improved utility and function of seasonal climate forecasts; Sub-activity 1.2.2.2. New downscaled datasets developed and interfaced with sector-defined CIS

Status

Activity started - progress delayed

Implementation Progress *

60

%

Original timeline planned for this activity *

Q3 2019 to Q1 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones for 2022 as per 2021APR:

1. Revised Climate Bulletins for Fisheries and Tourism
2. Develop prototypes of Climate Bulletins for Agriculture, Infrastructure and Water.
3. Establishing end user feedback for Sector Climate Bulletins.

Progress in 2022:

1. Two sector-focused workshops were conducted – with Fisheries (04/04/2022) and Tourism (14/04/2022); BOM, PMU, VMGD team and representatives from the sectors discussed needs for climate monitoring and prediction products, and developed plans to implement activities on strengthening CIS.
2. Sector-focused workshop with Fisheries has been conducted on 11/10/2022. Participants from BOM, PMU and Fisheries sector discussed (i) user's perspective on value of Climate Bulletin for Fisheries, (ii) requirements for Marine Protected Areas and Early Warning System for Marine Heatwaves, and (iii) availability of ocean observation data from 5 buoys which have been deployed as of November 2022.
3. New prototype of Climate Bulletin for Agriculture Sector now available on the VMGD website - <http://www.vmgd.gov.vu/vmgd/index.php/climate/reports-and-summaries/agromet-bulletin>
4. BOM, PMU, VMGD team monitored production of Climate Bulletins for sectors Fisheries and Tourism. Scientific guidance with developing Climate Bulletin for Water has been also provided. A prototype Climate Bulletin for Water was revised and improved.

Issues/Challenges/Delays:

1. In-country visits and engagements with national stakeholders were limited due to COVID-19.
2. Slow feedback from the Water Sector with regards to Climate Smart Actions/Recommendations for the Water Sector seasonal forecast bulletin.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Face to face and in person training delivered by BOM for VMGD is effective and must continue where possible and increase in 2023. This will increase the capacity of VMGD and for the sustainability of the delivery of seasonal impact forecast service.
2. Seasonal forecasts will require the updated climate data records to integrate with the seasonal forecast and provide localised information thus this activity is dependent on the delivery of activity 1.1.1. The monthly co-production meeting organised by the PMU has helped resolved this issue.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Future work will including sourcing user feed back and requirements from the priority sectors and aligning them to monitor and revise Climate Bulletins.
2. Further steps will be undertaken to include more detailed requirements into Climate Bulletins targeting specific needs of the priority sectors. These will be combined with aligned activities (such as TK where relevant) to leverage learnings and reduce meetings for in-country sectors and users. Follow-up workshops with Fisheries, Water, Agriculture and Tourism are also planned, to deliver maximum benefits from BOM - VMGD - Sectors collaboration.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.3: Long-term projections for key climate variables and climate extremes for Vanuatu; Sub-activity 1.2.3.1. Developing multi-model projections for key climate variables in Vanuatu

Status

Activity started - progress delayed

Implementation Progress *

50

%

Original timeline planned for this activity *

Q3 2019 to Q4 2020

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestone for 2022 as per APR2021:

CSIRO resources were not able to be allocated to the Project in the later half of 2021 and a revised Agreement has been implemented between the Implementing Entity and Delivery Partner to reassess engagement and contributions towards the project. A revised work programme is to be negotiated with CSIRO in the period January - June 2022 aiming for re-engagement in the second half of 2022.

Progress in 2022:

1. Draft final Technical Report documenting the full suite of projections science and associated data and technical information produced during the Van KIRAP project. These data and information are designed to provide detailed climate projections across multiple climate hazards/variables at relevant national/sub-national spatial scale and for selected globally consistent climate change scenarios relevant across multi-decadal (climate change) time-scales. These data and information in turn have been/are being utilised to develop science-based CIS products tailored to the specific needs of target sectoral users, including as deployed via the Van KIRAP portal and as applied and demonstrated via the VanKIRAP sectoral case studies.
2. The development and demonstration of the multi-model projections at the sectoral level (Sector Case Studies) and the practical application of tailored CIS products are in draft, and designed to inform the front-end functionality of the vanKIRAP Portal with the view to ensuring that the technical CIS output of all relevant CSIRO deliverables are readily accessible via the portal, together with requisite guidance materials to facilitate sectoral applications around the climate change hazard based impact assessment. The project team identified a need for demonstration of practical application of science-based CIS products to inform hazard-based climate impacts across relevant multi-decadal climate change scenarios to 2050 for the five priority sectors for Van KIRAP, Viz: tourism, infrastructure, fisheries, water and agriculture. The climate hazards variously include temperature and rainfall (mean and extremes), including heatwaves, drought, tropical cyclones and extreme rainfall, sea level rise/coastal inundation, marine heatwaves, ocean acidification and coral bleaching. The case studies apply CIS products from other Activities and also develop additional CIS products and associated guidance materials to facilitate sectoral applications. The case studies also provide CIS inputs for delivery via the Van KIRAP portal including design rationale for the front-end user interface/architecture of the portal. To this end this 'supplementary' case study activity has worked closely with the Van KIRAP portal activity to enhance the digital visualisation, spatial referencing and overall utility, functionality and accessibility of the CIS products delivered by CSIRO for Van KIRAP via the portal. The approach we are taking with these case study focus proposals is therefore iterative and co-operative (co-design/co-production where possible) with close engagement, guidance and input from Van KIRAP sector leads and the PMU throughout the reporting period, including as part of the program for Mission #1 in Oct 2022. It is expected that these case studies will also align with and otherwise inform directly the case studies being undertaken simultaneously by the Van KIRAP sector coordinators and their teams in Vanuatu.

Issues/Challenges/Delays:

1. Six month pause of CSIRO engagement in the project from January to June 2022, impacted on the activities. Activity resumed again in July 2022 with CSIRO first Vanuatu mission in October 2022.
2. COVID-19 impacted on travel and therefore CSIRO was not able to visit Vanuatu in early to mid 2022, coupled with point 1 above.

Reason for variation:

1. CSIRO 6 months pause in 2022 (January to June).
2. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
3. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Efficient processing of project extension request and timely submission of annual progress reports to GCF is imperative, to minimise implications on project implementation/timely disbursements.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. CSIRO mission to Vanuatu in Q1 2023, finalisation of the Technical Report on projection science for Vanuatu.
2. CSIRO to complete this activity for the project by December 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.3: Long-term projections for key climate variables and climate extremes for Vanuatu; Sub-activity 1.2.3.2. Downscaled projections ground-truthed and outreach to target next/end users

Status	Implementation Progress *
Activity started - progress on track	60 %

Original timeline planned for this activity *

Q3 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestone for 2022 as per APR2021:

CSIRO resources were not able to be allocated to the Project in the later half of 2021 and a revised Agreement has been implemented between the Implementing Entity and Delivery Partner to reassess engagement and contributions towards the project. A revised work programme is to be negotiated with CSIRO in the period January - June 2022 aiming for re-engagement in the second half of 2022.

Progress in 2022:

1. Draft final technical report describing key CIS outputs/products, including description of methods, data management and proposed sectoral applications, has been completed and is presently undergoing internal (CSIRO) peer and external (PMU) stakeholder review. The draft final technical report consists of approx. 80 pp and provides a detailed description (data, methods, applications, future directions etc) of all work completed by this Activity 1.2.3 since project inception, specifically covering sections on projected changes in both mean and extreme climatologies at national and sub-national scale for current and future climate scenarios across multiple hazards, viz: temperature, rainfall, tropical cyclones and drought.
2. Outreach and awareness activities with national stakeholders in October 2022 designed to facilitate outreach, knowledge brokering and communications on the downscaled climate change projections for sector applications.

Issues/Challenges/Delays:

1. Six month pause of CSIRO engagement in the project from January to June 2022, impacted on the activities. Activity resumed again in July 2022 with CSIRO first Vanuatu mission in October 2022.
2. COVID-19 impacted on travel and therefore CSIRO was not able to visit Vanuatu in early to mid 2022, coupled with point 1 above.

Reason for variation:

1. CSIRO 6 months pause in 2022 (January to June).
2. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
3. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

NA

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. CSIRO mission to Vanuatu in Q1 2023
2. CSIRO to complete this activity by December 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.3: Long-term projections for key climate variables and climate extremes for Vanuatu; Sub-activity 1.2.3.3. Apply Global Climate Model projections to observed datasets

Status	Implementation Progress *
Activity started - progress delayed	60 %

Original timeline planned for this activity *

Q3 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestone for 2022 as per APR2021:

The climate hazards datasets for various climate elements include temperature and rainfall (mean and extremes), including heatwaves, drought, tropical cyclones and extreme rainfall, sea level rise/coastal inundation, marine heatwaves, ocean acidification and coral bleaching developed and inform the the Technical Report. The sector case studies apply CIS products from other Activities and also develop additional CIS products and associated guidance materials to facilitate sectoral applications. The case studies also provide CIS inputs for delivery via the Van KIRAP portal including design rationale for the front-end user interface/architecture of the portal. To this end this 'supplementary' case study activity has worked closely with the Van KIRAP portal activity to enhance the digital visualisation, spatial referencing and overall utility, functionality and accessibility of the CIS products delivered by CSIRO for Van KIRAP via the portal.

The format of the case studies as final CIS products is yet to be confirmed, but at this stage will likely feature a suite of inter-related climate data and information 'info-bytes' which are deliberately designed to be concise, user-friendly (so non-technical where possible) snapshots of data and information that are highly contextualised and tailored to the specific needs of target sectoral users; in partyicularly for undertaking first-pass hazard-baqsedc impact assessments to inform climate change risk, policy development, adaptation planning and associated decision-making.

Development and delivery of the case studies for this Activity has also involved i) procurement of multiple ex CSIRO domain experts to supplement technical input including Univ Hawaii (climate variability and ENSO), Federation University Aust (tropical cyclones and extreme rainfall), NIWA (flood modelling; TBC), and ii) collaboration with other related projects in Vanuatu including potentially (TBC) UNOSAT NORAD (geo-spatial data, visualisation and analytics) and ADB (Pt Vila climate resilient urban infrastrcure and also Luganville coastal hazards and climate-related DRM/evacuation centres).

The approach we are taking with these case study focus proposals is therefore iterative and co-operative (co-design/co-production where possible) with close engagement, guidance nd input from Van KIRAP sector leads and the PMU throughout the reporting period, including as part of the program for Mission #1 in Oct 2022. It is expected that these case studies will also align with and otherwise inform directly the case studies being undertaken simultaneously by the Van KIRAP sector coordinators and their teams in Vanuatu.

Issues/Challenges/Delays:

1. Six month pause of CSIRO engagement in the project from January to June 2022, impacted on the activities. Activity resorted again in July 2022 with CSIRO first Vanuatu mission in October 2022.
2. COVID-19 impacted on travel and therefore CSIRO was not able to visit Vanuatu in early to mid 2022, coupled with point 1 above.

Reason for variation:

1. CSIRO 6 months pause in 2022 (January to June).
2. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
3. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

Refer to above Sub Activity 1.2.3.2.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. CSIRO mission to Vanuatu in Q1 2023
2. CSIRO to complete this activity by December 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.3: Long-term projections for key climate variables and climate extremes for Vanuatu; Sub-activity 1.2.3.4. Synthesis and report application-ready data in context of risk assessments for sectors, outreach to next / end users

Status

Activity started - progress delayed

Implementation Progress *

60

%

Original timeline planned for this activity *

Q4 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestone for 2022 as per APR2021:

CSIRO resources were not able to be allocated to the Project in the later half of 2021 and a revised Agreement has been implemented between the Implementing Entity and Delivery Partner to reassess engagement and contributions towards the project. A revised work programme is to be negotiated with CSIRO in the period January - June 2022 aiming for re-engagement in the second half of 2022.

Progress in 2022:

1. Technical Synthesis report application-ready data in context of risk assessments for sectors is in final draft.

Issues/Challenges/Delays:

1. CSIRO 6 months pause in 2022 (January to June).
2. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
3. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

Refer to above Sub activity 1.2.3.2.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. CSIRO mission to Vanuatu in Q1 2023
2. CSIRO to complete this activity by December 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.4: Risk-based coastal and other climate hazard analysis and mapping; Sub-activity 1.2.4.1. Mapping climate hazard 'hotspot' exposure

Status

Activity started - progress delayed

Implementation Progress *

50

%

Original timeline planned for this activity *

Q1 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestone for 2022 as per APR2021:

CSIRO resources were not able to be allocated to the Project in the later half of 2021 and a revised Agreement has been implemented between the Implementing Entity and Delivery Partner to reassess engagement and contributions towards the project. A revised work programme is to be negotiated with CSIRO in the period January - June 2022 aiming for re-engagement in the second half of 2022.

Progress in 2022:

1. The project mapped the bleaching risks hotspot areas in Vanuatu. The report is available here: <http://bit.ly/46YJmYk>. This report contains maps and histograms that describe the past and projected future impacts of thermal stress and resultant coral bleaching on the reefs of Vanuatu. The report includes maps of Vanuatu for a range of variables that describe the thermal history (1985-2017) and projected future exposure to thermal stress. Data for the histograms that accompany each map have been provided as a separate Excel file. All maps within this report have also been provided as individual super high-resolution image files for use in presentations and other reports.

The report is supported by the new Vanuatu NextGen Projections report now released - This report presents information about average temperature and rainfall change in Vanuatu, including historical change, interpretation of climate projections. The Vanuatu NextGen Projects can be accessed via this link - <https://www.rccap.org/uploads/files/2c538622-72fe-4f3d-a927-7b3a7149e73f/Vanuatu%20Country%20Report%20Final.pdf>

2. Draft Climate hazard mapping of Vanuatu's climate (precipitation, temperature, El Niño, La Niña and ENSO Neutral periods) are available for validation by national stakeholders in first half of 2023. The new Vanuatu climate maps which is a milestone achievement of the VanKIRAP Project. The 769 maps include average rainfall, temperature, El Nino, La Nina and ENSO neutral maps available at the national and provincial scales. Maps are available here: https://sprep-my.sharepoint.com/personal/sunnys_sprep_org/_layouts/15/onedrive.aspx?id=/personal/sunnys_sprep_org/Documents/Van-KIRAP%20Doc%20Sharing%20Platform/027.%20Climate%20Information%20and%20Tools/c.%20Vanuatu%20Climate%20Maps&ga=1

Issues/Challenges/Delays:

1. CSIRO 6 months pause in 2022 (January to June).
2. Delayed start of activities due to project restructure in 2019.
3. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

Refer to above Sub Activity 1.2.3.2

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. CSIRO mission to Vanuatu in Q1 2023
2. CSIRO to complete this activity by December 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.4: Risk-based coastal and other climate hazard analysis and mapping; Sub-activity 1.2.4.2. Developing projected extreme sea level probabilities for designated coastal 'hotspots'

Status

Activity started - progress delayed

Implementation Progress *

50

%

Original timeline planned for this activity *

Q3 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestone for 2022 as per APR2021:

CSIRO resources were not able to be allocated to the Project in the later half of 2021 and a revised Agreement has been implemented between the Implementing Entity and Delivery Partner to reassess engagement and contributions towards the project. A revised work programme is to be negotiated with CSIRO in the period January - June 2022 aiming for re-engagement in the second half of 2022.

Progress in 2022:

1. The project is in the final stages of completion according to the 2022 CSIRO DP work plan. In particular the focus over the reporting period has been on finalising the modelling platform for physically simulating the inshore bathymetry and coastal topography as settings for the climate configured inundation model. The output of this model will then be used to generate the key CIS data and information related to coastal inundation hazards for Vanuatu for relevant climate change scenarios. The latter also includes requisite CIS inputs to the sectoral case studies (Activity 1.2.3) and the Van KIRAP portal development
2. During the reporting period this Activity has assisted the PMU and fisheries sector with deployment of 5 Sofar Spotter wave buoys throughout Vanuatu, and real-time wave height observational data has been successfully shared; including preparing to share plotting/data QC code ported to Vanuatu Spotter buoys with SPREP/VMGD project officers and the fisheries sector.

Issues/Challenges/Delays:

1. CSIRO 6 months pause in 2022 (January to June).
2. Project restructure in 2019 delayed the start of the activities.
3. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

As above.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. CSIRO mission to Vanuatu in Q1 2023
2. CSIRO to complete this activity by December 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.5: Vulnerability mapping of the coastal zone in Vanuatu; Activity 1.2.5.1. Develop biogeochemical and hydrodynamic model for coastal areas of Vanuatu

Status	Implementation Progress *
Activity started - progress delayed	50 %

Original timeline planned for this activity *

Q1 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestone for 2022 as per APR2021:

CSIRO resources were not able to be allocated to the Project in the later half of 2021 and a revised Agreement has been implemented between the Implementing Entity and Delivery Partner to reassess engagement and contributions towards the project. A revised work programme is to be negotiated with CSIRO in the period January - June 2022 aiming for re-engagement in the second half of 2022.

The focus of Activity 1.2.5 is on the development of coastal ocean temperature (marine heatwaves) and ocean chemistry (acidification) hazard analysis to inform CIS products for sectoral applications in Vanuatu. This includes to develop national-level current and future ocean temperature and chemistry climatologies together with a suite of tailored analytical metrics intended as stand-alone data-based CIS products and/or as part of an integrated decision-support CIS capability delivered via the Van KIRAP portal (Activity 1.1.2.3) and/or demonstrated via the sector case studies (Activity 1.2.3 Supplementary), of specific relevance to the fisheries and tourism sectors.

Progress in 2022:

Progress during the reporting period includes completing analyses of historic and projected sea surface temperature (SST) and marine heatwaves, and delivering these datasets as well as ocean chemistry projections datasets to the VanKIRAP portal. There has also been considerable engagement with the VanKIRAP portal developers around what the datasets represent and what portal functionality should be associated with them, illustrated by providing figures and graphs of the types of functionality users could be interested in. There will be further work conducted (Feb 2023+) with NGIS to further test and refine portal functionality in terms of the way users can interact with the datasets and provide further descriptions of data and methodology based on user feedback.

New additional marine heatwave analyses was also initiated during the reporting period specifically to inform the fisheries and tourism case studies providing focused analyses for areas identified by fisheries sector personnel in Vanuatu. There will be further provision of text for case study reports in conjunction with CSIRO and VanKIRAP colleagues as the case study reports progress further.

Issues/Challenges/Delays:

1. CSIRO 6 months pause in 2022 (January to June).
2. Project structure by SPREP Implementing Entity in 2019 delayed the start of the activities.
3. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

As above.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. CSIRO mission to Vanuatu in Q1 2023
2. CSIRO to complete this activity by December 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.5: Vulnerability mapping of the coastal zone in Vanuatu; Sub-activity 1.2.5.2. Develop ocean acidification and marine impact projection maps

Status

Activity started - progress delayed

Implementation Progress *

50

%

Original timeline planned for this activity *

Q3 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestone for 2022 as per APR2021:

CSIRO resources were not able to be allocated to the Project in the later half of 2021 and a revised Agreement has been implemented between the Implementing Entity and Delivery Partner to reassess engagement and contributions towards the project. A revised work programme is to be negotiated with CSIRO in the period January - June 2022 aiming for re-engagement in the second half of 2022.

Progress in 2022:

1. CMIP5 projections (six models) produced at regionalised GCM resolution for pH and aragonite saturation state (using PACSSAP data) at sub-national/regional scale and delivered to NGIS for inclusion in the Van KIRAP portal.
2. Historic and projected SST and marine heatwave analyses completed and initial datasets provided to portal; specifically for Espiritu Santo and Port Vila domains (historic only, at resolution of observation dataset 0.25degree) and for Vanuatu EEZ (historic + projections from 18 CMIP6 models, at resolution of CMIP6 models) splitting the region into three areas based on SST contour which loosely tie in with related north, central and south sub-national climatological categories; will be further work with NGIS to test portal functionality with the datasets and provide further descriptions of data and methodology; further marine heatwaves analyses being undertaken for the fisheries and tourism case studies (Dec 2022-Jan 2023) providing focused analyses for areas identified by fisheries personnel; will be ongoing provision of data and text for case study reports in conjunction with CSIRO and VanKIRAP colleagues
3. Attended case study meetings for three sectors (tourism; fisheries; infrastructure) in August 2022; attended portal meetings with NGIS; attended the Australian Research Council Centre of Excellence for Climate Extremes (CLEX) Ocean Extremes Conference (October 2022) where we gave a presentation on VanKIRAP activities including the coastal ocean modelling, cyclone, and marine heatwave components; was an invited attendee at the Pacific Community Centre for Ocean Science (PCCOS) Ocean Modelling Meeting (4-6 October 2022) where we presented on our coastal ocean modelling work including VanKIRAP activities to community of science peers

Issues/Challenges/Delays:

1. CSIRO 6 months pause in 2022 (January to June).
2. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
3. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
4. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
5. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Reason for variation:

1. Project structure by SPREP Implementing Entity in 2019 delayed the start of the activities.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

As above.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. CSIRO mission to Vanuatu in Q1 2023
2. CSIRO to complete this activity by December 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.6: Developing tailored Agro-met predictions for target cropping systems; Sub-activity 1.2.6.1. Develop Agro-met information portal including new on-line IT infrastructure and software (VaCSA prototype)

Status	Implementation Progress *
Activity started - progress delayed	85 %

Original timeline planned for this activity *

Q4 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones for 2022 as per 2021APR

- A. The ongoing updating of the VaCSA to incorporate
1. weather and climate information
 2. traditional knowledge decision support tool
 3. farming activity decision support in the form of a crop yield simulator

B. Continue to provide and improve the Agro-Met Bulletin

Progress in 2022:

APEC Climate Center has entered into a contract with an IT Development company for the development of the 3rd and final phase of the VaCSA (now called OSCAR) development. OSCAR-III development continue from 1 September 2022 to 31 August 2023 for 12 months. To fully hand-over the OSCAR system, the agreement has been made on intensive training course (APCC-invited program) for extension specialists from Vanuatu to attend in Korea.

To easily reach out to other beneficiaries including local community such as school, church, women's and youth groups and provincial government, we designed and produced the leaflet on introduction of OSCAR. But, effective channels may need to be explored to widely disseminate the OSCAR system by ensuring 'no-one left behind'. This is the information leaflet for the VanKIRAP Tailored System of Climate Services for Agriculture (OSCAR). The OSCAR system is a Vanuatu Customised Climate Information Services-based Decision Support System (DSS) for farmers. The OSCAR leaflet can be accessed here: https://www.nab.vu/sites/default/files/documents/VanKIRAP_OSCAR_information_leaflet_0.pdf

Issues/Challenges/Delays:

1. Under the global pandemics (COVID-19), building rapport between APCC and beneficiaries was delayed and challenged. Lack of rapport weaken mutual understanding and awareness on field oriented activities and necessarily of CIS tools.
2. In addition to this, it seems to be difficult for government to develop strategies or plans for the sustainable maintenance on equipment such as agromet stations and tablet PCs.
3. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

APCC are heading the end of project for developing tailored agro-met predictions for the target cropping system. Although we provided on-site training programs and workshops in-person, it was not enough to fully hand-over the knowledge and technique. As a part of effort on good governance, we will focus on the sustainable operation and management on the OSCAR system by inviting stakeholders to APCC to provide an intensive training course.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. The OSCAR system will be improved, adding functions such as early warning, decision supporting and agromet bulletins, etc.
2. Also, the intensive training course will be provided to fully hand-over the OSCAR system.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.6. Developing tailored Agro-met predictions for target cropping systems; Sub-activity 1.2.6.2. Collecting, modeling, analysis and reporting of agro-met data to determine optimal agriculture crop planning options

Status	Implementation Progress *
Activity started - progress delayed	85 %

Original timeline planned for this activity *

Q4 2018 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

The key milestone for 2022 as per 2021 APR will be the ongoing field trials and updating of the VaCSA system based on data obtained. This will include:

1. Agro-data and Met-data collection for selected crops at selected sites.
2. Generation of high resolution weather and climate data for the base of national level agro-met services
3. SOPs for data collection through CCD established.
4. Combining traditional knowledge and science-based climate smart practices for agriculture decision tree.
5. Producing monthly national agromet bulletin

Progress in 2022:

1. Agro-met data were collected by Department of Agriculture and Rural Development on the three demonstration plots in (i) Tagabe, Efate, (ii) Vanuatu Agriculture Research Training Centre (VARTC) in Luganville, Santo and Sola in Torba were analysed.
2. For meteorological data supplied by VMGD (see Project Activity 1.1.1: Improving the currency, functionality and visualization of climate data records for Vanuatu), the production of high-resolution daily maximum and minimum temperatures were fully completed, and pre-processing procedures were finished. For agricultural data, the phenological data (Cassava and Taro) have completely collected throughout experimental field trials at the DARD and VARTC sites from February to December, 2022. Also, the digital pedological map have been being improved by focusing on completeness and usefulness.
3. The standard operating procedure for data collection through the Crop Climate Diary (CCD) function of the VaCSA (OSCAR system) is now fully operational. SOP development with field trial experimental design and establishment: The APCC team developed two Standard Operating Procedures (SOPs) for Cassava and Taro in accordance with the decision tree for identification of crops and models. The team took three steps to drive the SOP development: (1) DSSAT trial simulation, (2) research on the crop growth process for both Cassava and Taro, (3) close collaboration with the VMGD Climate and ICT Divisions, PMU and Pakoa Leo, Agriculture Sector Coordinator.
4. The traditional knowledge and science-based climate smart practices are now featured in the monthly agromet bulletins. The information on moon phases is one important CIS that allow the farmers to track the planting, harvesting of crops in alignment with customs and traditions especially the rituals for the first harvest for yams, taro and cava. Furthermore the traditional knowledge has been translated in Bislama and communicated through the monthly agromet bulletins and updated on the agriculture decision tree in OSCAR.
5. VanKIRAP has continued to issue monthly national Agrometeorology bulletins to the Department of Agriculture and Rural Development (DARD), farmers and the general public.

January 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_January__2022.pdf.

February 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_February__2022.pdf.

May 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_May_2022.pdf

June 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_June_%202022.pdf

July 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_July_%202022.pdf

August 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_August_%202022.pdf

September 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_September__2022.pdf

October 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_Oct__2022.pdf

Issues/Challenges/Delays:

1. Delay in the start of the experimental field trials due to recruitment of data collectors, design and setup of the experimental plots and training for data collectors.
2. COVID-19 pandemic disrupted the implementation for months.
3. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Automation of the development process of the agromet bulletin through the OSCAR system will improve the efficiency and delivery of the bulletin.
2. A more effective coordination between SPREP Implementing Entity, PMU and Delivery Partners in the development of DP Agreements and efficient process and resources for Project Structure.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. The optimal agricultural management options for Cassava and Taro will be proposed throughout the crop modelling which embedded in Vanuatu's agricultural practices and high resolution met-data
2. Undertake field trials on vegetables on existing experimental field plots in Tagabe, VARTC and Sola.
3. Producing monthly national agromet bulletin for 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.6: Developing tailored Agro-met predictions for target cropping systems; Sub-activity 1.2.6.3. Undertaking field trials and validation prior to incorporation into DSS delivery platforms, ground-truthing and outreach with target Next/End-Users

Status

Activity started - progress delayed

Implementation Progress *

75

%

Original timeline planned for this activity *

Q1 2021 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

The key milestone for 2022 as per 2021 APR will be the ongoing field trials with champion farmers and extension officers, and updating of VaCSA system based on data obtained.

The OSCAR system is being developed in three phases:

- [Feb 2019 – Dec 2019] OSCAR Phase I
- [Jul 2021 – Feb 2022] OSCAR Phase II
- [Sep 2022 – Aug 2023] OSCAR Phase III

Based on a previous meeting with VMGD and each PMU (held on 6 Aug 2021), APCC hosts three training webinars during OSCAR Phase II:

- [25 Aug 2021] Concept of OSCAR Phase II & Development Plans
- [30 Nov 2021] OSCAR Phase II alpha version and feedback
- [02 Mar 2022] OSCAR Phase II final version

Learning-By-Doing- the OSCAR training program will focus on active, hands-on and engaging for participants with the overarching goal of strengthening technical capacity for the sustainable management and operation on OSCAR system.

Progress in 2022:

1. The on-site training were provided both in Port Vila and Luganville. Champions farmers were successfully identified for demonstration field trials, and the selected farmers are in the middle of conducting demonstration field trials.
2. OSCAR Training Program Webinar III was delivered in Port Vila and Luganville on the 9 and 13 December 2022 respectively. 38 Participants that received the training represent (i) Vanuatu Meteorology and Geohazards Department, VMGD, (ii) Vanuatu Department of Agriculture and Rural Development, DARD, (iii). VMGD Project Management Unit, PMU, (iv) Secretariat of the Pacific Regional Environment Programme, SPREP PMU, and (v) Vanuatu Agricultural Research and Technical Center, VARTC. The APCC portion of the Van KIRAP project aims to develop the Crop-Climate Diary (CCD) and tailored System of Climate services for Agriculture (OSCAR). These will provide relevant climate information applied to the agriculture sector. The CCD will serve as a tool to collect data in an efficient streamlined manner from different areas of Vanuatu. Utilizing the data from CCD, OSCAR will be a hub for the interaction of climate information and agriculture.

The OSCAR Training Program Webinar III will be to: 1. Share the OSCAR Phase III status, 2. Provide a basic knowledge on Artificial Intelligence (AI) and its experiences, 3. Get knowledge on scientific based Climate Extremes Indices, 4. Draw warning insights from agromet indices for farming practices and 5. Share feedback and further ideas on OSCAR-III.

3. Aligned to Activity 1.2.6 (above), VanKIRAP has continued to issue monthly national Agrometeorology bulletins to the Department of Agriculture and Rural Development (DARD), farmers and the general public.

January 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_January__2022.pdf.

February 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_February__2022.pdf.

May 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_May_2022.pdf

June 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_June_%202022.pdf

July 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_July_%202022.pdf

August 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_August_%202022.pdf

September 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_September__2022.pdf

October 2022 Agromet bulletin - http://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Agromet_Bulletin/Agromet_Oct__2022.pdf

Issues/Challenges/Delays:

1. COVID-19 pandemic disrupted the implementation for months. Onsite training for DARD, extension officers and data collectors was not possible. Training webinars delivered virtually was the alternative but instead of training taking place in March, it was re-scheduled to December 2022.
2. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Local capability enhanced to continue activities without little interaction with international delivery partners.
2. Due to COVID-19, it has been difficult to conduct training programs on VaCSA. However, as COVID-19 is becoming more and more prolonged, while progress on VaCSA has been moving forward, the need for regular sessions with VMGD, Van KIRAP PMUs, and DARD became more and more apparent, in order to increase the awareness of the VaCSA functions. Therefore, APCC and the Van KIRAP PMUs agreed on a three-part VaCSA Webinar plan.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Community Farmers workshop will be held with champions farmers in Port Vila, Luganville and Tanna, while keep conducting demonstration field trials.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 1.2. Research, modelling and prediction to support CIS tools and uptake

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 1.2.6: Developing tailored Agro-met predictions for target cropping systems; Sub-activity 1.2.6.4. Develop the crop-climate diary customised for agro-met data collection

Status

Activity started - progress delayed

Implementation Progress *

85

%

Original timeline planned for this activity *

Q1 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones for 2022 as per 2021APR:

1. Develop and test CCD application algorithm with the data collected from test trials - estimating crop weights and or canopy coverages based on photos taken and just the algorithm as needed using deep learning technologies.
2. Calibrate CCD using data from test trials.

Progress in 2022:

1. The CCD app have been improved by loading deep learning based crop weight estimation.
2. The training programs were conducted with hand-on practices.
3. The offline digital maps with geographical information for CCD app are in the middle of developing.

Issues/Challenges/Delays:

1. The CCD app's user interface poses a challenge for end users, hindering ease of use. Improvement is necessary to enhance user experience.
2. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.
3. COVID-19 travel restriction impacted on international and domestic travels. Project implementation was impacted.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

CCD Tablets receive GNSS signals and identified current locations, but is not consistent with the GPS initialisation time and information on offline map display.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. The tablets, PC will be purchased, and have functions loaded
2. The training program will be held for officers on utilizing the CCD app and Tablet PCs.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 2.1 - CIS implemented within target sectors

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 2.1.1: Investigating the climate sensitivity, potential impacts and vulnerability of food crops in Vanuatu to secure future food security

Status	Implementation Progress *
Activity started - progress on track	70 %
Original timeline planned for this activity *	
Q3 2019 to Q4 2021	
Please refer to the Implementation Timetable in the log-frame	

Progress for the relevant reporting period

Key milestones and deliverables in 2022 as per 2021APR:

1. Demonstration plots fully established with crops and data collection to commence and uploaded to the Climate Crop Diary and VaCSA.
2. The traditional knowledge data collection, analysis, and verification to be undertaken and finalised with data uploaded into VaCSA.
3. Combining traditional knowledge and science-based climate-smart practices for agriculture decision tree.
4. Farmer schools undertaken at demonstration sites.
5. CIS for Agriculture sector products reviewed and updated. Gaps identified and new products developed.
6. Training on CIS tools to be undertaken for DARD personnel (e.g. agriculture extension officers) and farmer awareness sessions held.

Progress in 2022:

1. Three experimental demonstration plots setup and operational for Island Taro (Tarapatan variety) and Cassava (Tagabe 1 variety) at Tagabe, VARTC and Sola locations. Field trials are run in these experimental plots, daily monitoring the plants and collecting crop information data for Cassava & Island Taro like leaf dynamics and weight of above/below ground biomass, etc. These data are used to calibrate the process-based crop model of from the Decision Support System for Agrotechnology Transfer (DSSAT) database. This is essential because the local varieties of cassava & Island Taro used in Vanuatu may not be readily available in the DSSAT crop database. The new data collected by the project will contribute to the DSSAT.

The calibration of the existing cultivar genetic coefficients will create new local varieties within the model. Genetic coefficients are based on experimental field data, using mainly crop information data on plant phenology and yield (at harvest maturity). This ensures that the model simulation closely mimics the maturity days and yields estimated by the experimental data. The genetic coefficient values under the coded coefficients will be manipulated by either increasing or decreasing the values until the plant phenology and yield closely resemble those of the field values. After completing the experimental trial and applying the results to the VaCSA platform accordingly, the demonstration plot will be ready for applying the best agricultural practice for Vanuatu provided by VaCSA.

2. Traditional knowledge surveys were conducted on 3 main islands in Vanuatu namely Epi, Santo, and Vanua lava island. The survey mainly collects information on planting times; harvesting methods, storage methods, and pest and disease control methods. Information collected on Traditional methods of controlling Pests has been tested in Port Vila and VARTC at the demonstration plot. The important Pest that traditional knowledge treatment was targeting was the Taro beetle (Papuana beetle). The treatment used in the TK demonstration plot was as follows; a) coleus, b) Nambangura fruit; c) Natongtong leaves; d) wild kava leaves; e) Nabalango fruits; f) Wild Bevu, and a control treatment. Findings from the demonstration plot can be used in the Agrometeorology bulletin for farmers to access that important information to increase the production of crops such as Taro.

3. Traditional knowledge 'key messages' are integrated into the OSCAR System as well as the Agrometeorology bulletins.

4. Farmer Field Schools on the demonstration site have not been possible during this reporting period as a result of travel restrictions due to COVID-19. However, a total of 15,502 planting materials were supplied to farmers during the pandemic sourced from the project demonstration plots.

5. New Vanuatu Agrometeorology bulletin is produced routinely and available on the VMGD website and delivered through an email list for various audiences including agriculture sector people and farmers.

6.a. The project provided training to Department of Agriculture staff and stakeholders at the Western Santo summit on Climate-smart Agriculture and enhancing custom knowledge in early January 2022. The summit provided the opportunity to conduct a presentation on Agromet (Climate information services for farmers) and also introducing the VANKIRAP agriculture sector products that will be supplied by the project. Additionally, the summit presented an opportunity to collect traditional knowledge information from the participants during the workshop; To conduct demonstrations on climate-smart practices such as Agroforestry (alley cropping system), drip irrigation, mulching, composting, grafting, Yam miniset, and snail and rat control. The summit took place at Wusi village in Western Santo. There were 66 participants who attended the Climate Smart summit who come from different villagers from the northwest and west coast Santo. Among the 66 participants, there were 59 males and 7 Females attended the summit. There were no disabilities that attend the workshops.

b. Moreover the project through the Agriculture Sector Coordinator provided training for local data collectors managing the demonstration site in VARTC. The training focussed on the standard operating procedures for Island Taro, Cassava/Manioc.

c. The climate information services (CIS) products training workshop took place on July 4, 2022. The training was conducted by John Mangau (VMGD, climate officer) and the agriculture sector coordinator (Pakoa Leo) at Luganville. Participants that attend the workshop include DARD Agriculture extension and Technical officers and VARTC supervisors. Training includes a brief overview of Vanuatu's climate and the future climate of Vanuatu. Then followed by the CIS products which include, dry season outlook, wet season Outlook, Vanuatu climate update; Early action Rainfall watch (EARWATCH), and Agromet bulletin with Climate Services for Agriculture (CLIDE product). CIS products were also discussed by the participants and recommendations were made according to each CIS product. A total of 26 participants all together that attended the training and 4 female and 22 male.

d. Climate information services for farmers training conducted at the Vanuatu Christian Council building. The training was organized by UNDP through a project namely Market for Change (M4C). A presentation was conducted on climate information services mainly targeting climate information for farmers in Vanuatu and how farmers can make use of this climate and weather information to increase crop production and reduce climate-related loss. The agromet bulletin was one of the highlights during the discussion with farmers and they have shown interest to use the information in guiding them in the coming months in farming. There were 33 participants altogether and 26 were females and 7 males.

e. Agromet bulletin awareness conducted at Mini-Agriculture show, Northwest coast of Santo, Nukuku village. The mini agriculture show was organized by an NGO called Santo Sunset environmental network (SSEN). The mini agriculture show brings together key farmers from West and North West Santo together. The show took place from the 30th of August to the 2nd of September 2022. There were 72 key farmers altogether 24 were females and 48 were males. Agromet awareness took place on 1 September 2022. During the awareness, all the key farmers and people from the nearby villages were also present during the time awareness was undertaken during the day. Farmers were interested in the management section of the agromet bulletin especially

the traditional knowledge methods that can be applied during the planting of crops and also during pest and disease management. One request was suggested by farmers if there are possibilities to provide some signboards of ENSO Dials in their areas would be very helpful and also the moon calendar.

Issues/Challenges/Delays:

1. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.
2. COVID-19 travel restriction impacted on international and domestic travels. Project implementation was impacted.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Agriculture Sector Coordinator continues to coordinate work of the project and other development initiatives in the Department of Agriculture and Rural Development. The outreach and awareness activities undertaken by the department is used as a vehicle to deliver CIS to farmers in coordination with sector programs.
2. VaCSA/OSCAR training is required for Agriculture staff, extension workers and community farmers. This will increase the uptake of CIS, VaCSA and OSCAR in all levels of society.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Harvest the crops on the demonstration site and provide report to APCC on the fresh and dry weights to support the finalisation of the OSCAR CIS platform.
2. Update and upload traditional knowledge to VaCSA for finalisation and official handover of VaCSA to Vanuatu in 2023.
3. Training on CIS on agrometeorology bulletin, VaCSA for agriculture extension officers and farmers in Efate, Santo and Tanna.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 2.1 - CIS implemented within target sectors

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 2.1.2: Improving food security in Vanuatu by using climate information to prepare for and respond to temperature impacts on coastal fisheries

Status	Implementation Progress *
Activity started - progress delayed	60 %

Original timeline planned for this activity *

Q1 2020 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones and deliverables for 2022 as per 2021 APR:

1. Undertake a baseline assessment as to current fishing / management practices in the site.
2. Establish community management plans in two sites.
3. Undertake a stakeholder user survey (through communication activity) to assess the baseline and identify needs.
4. Develop CIS for fishers and undertake CIS awareness sessions.

Progress in 2022:

1. Baseline Assessments have been completed early this year for Nalema, South Epi and Pangpang, East Efate. Further analysis of the data collected is in progress. The deliverable is a baseline report. A final draft report will be available in 2023.
2. Community-based fisheries management plans has been delayed as a result of COVID-19 and restrictions on domestic travel in early 2022. The process of developing the Tomman island, Malekula CBFM plan started on the 21st of June, 2022. With information sessions on climate change and CBFM plan, and the results from the underwater survey conducted from the first visit, the community realised the status of their coastal resources and the importance of establishing a CBFM plan of their own. Toman island community worked together with the Melip community to develop the management plan as these two communities share the same fishing areas. Both communities are dedicated to developing the CBFM plan as they have witnessed the effects of climate change on their fisheries. Tomman island CBFM plan is currently ongoing and should be completed and endorsed by Q4. The Community Fisheries Management Plans to be developed in 2023 in Nalema, Epi (Shefa Province).
3. Fisheries climate outlook bulletin was reviewed and updated on the 4th of April 2022 with BoM, PMU, and colleagues from the Fisheries Department. With the help from VMGD, the monthly Fisheries climate outlook bulletin will be released by the end of April 2022, and user feedback will be collected after that. The Fisheries Climate Outlook bulletin has been routinely issued since then to support decision-making in Fisheries. The August 2022 Fisheries Climate Bulletin can be accessed - https://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Fisheries_Climate_Outlook/Fisheries_Climate%20Outlook_August_2022.pdf
4. Fisheries data and sector case study information have been uploaded to the Vanuatu Climate Futures/VanKIRAP Portal. Portal CIS data activities during the reporting period: (A). Fisheries sector data: (i). Evaluation of marine habitat datasets, (ii). Ingestion of Allen Coral Atlas – geomorphic zonation, (iii). Ingestion of Allen Coral Atlas – benthic composition, (iv). Ingestion of Allen Coral Atlas – reef mask.

Issues/Challenges/Delays:

1. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.
2. COVID-19 travel restriction impacted on international and domestic travels. Project implementation was impacted.
3. Nastasia Shing, the Fisheries Sector Coordinator took maternity leave for 3 months. During her absence, Mr. Jayven Ham, Senior Fisheries Researcher progresses the activities as scheduled.
4. SPREP Implementing Entity has reduced the scope of the Fisheries Sector Case study, from four to only two sites. Tomman island and Nalema, Epi island remain as project sites but Pangpang community, East Efate and Aneityum has been removed.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Sector coordinator to embed budgeted project activities into the Department's annual business plan. Enhance the coordination and delivery of project activities and the Vanuatu Fisheries Department annual business plan. This is to ensure that the Fisheries Department staff can be released to assist with VanKIRAP implementation of scheduled activities.
2. Out-sourcing of activities to external contractors has been helpful, so delivery of activities meet project timelines.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Community consultations for the development of the community-based fisheries management plans in two communities in Nalema, Epi and Aneityum, Malekula in 2023 including the underwater ecological assessment.
2. Ongoing co-production of the Fisheries Climate Outlook bulletin
3. Community awareness and information sessions with fisheries stakeholders and fisheries officers.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 2.1 - CIS implemented within target sectors

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 2.1.3: Upgrade the standard infrastructure design in the Vanuatu Public Works Department using climate data on low-lying 'hotspot' and coastal erosion areas

Status	Implementation Progress *
Activity started - progress on track	55 %
Original timeline planned for this activity *	
Q2 2020 to Q4 2021	
Please refer to the Implementation Timetable in the log-frame	

Progress for the relevant reporting period

Progress in 2022:

1. The DJI Matrice 300 Drone with a LIDAR sensor has been procured and shipped to Vanuatu. In October 2022, the staff (4) for PWD, VMGD, and the Department of Water received drone operation training (theory and practical) from the supplier on the use and functionality of the new equipment. Technical training and workshops are critical component of purchasing new and advanced equipment, so the procurement team discussed with the supplier to identify which workshops was relevant for the local team. Two workshops components were identified: Drone Pilot workshops (theory and practical) and Customized workshops (safety, operations, user options etc).
As part of the capacity building for the sector, 2 officers from the PWD were nominated by the Project Manager to be part of the drone workshops provided by the supplier and also get the Drone Pilot certificate. The virtual workshops for part 101 pilot certificate will take place from 27th June to 30th June 2022.
2. Two Public Works Department staff Mr. Raviky Talae, VanKIRAP Infrastructure Sector Coordinator and Mr. Arty Man, Engineer, Public Works Department, who are involved in the Infrastructure Sector Case study, completed a Drone Pilot Certification from New Zealand in mid October 2023. Travel to New Zealand was required for the practical tests to meet the requirements. This is an important capacity development for Vanuatu and the Infrastructure Sector as this is a new capability introduced by the project with the GCF investment. A third candidate from the Public Works Department (Mr. Harold Allanson) was unable to attend the training in New Zealand due to being unable to get his passport renewed on time.
3. Using the drone, the project surveyed the case study sites in Santo, namely Wiaalo and Maniao Catchment. Initial meetings and briefings were conducted by the project with the Secretary-General (SG) of the Sanma Provincial Government in August 2022 to get the buy-in and support. In order to fully understand the rivers, mapping of the catchment areas of both case study sites is done so that we can fully understand these areas.
 - a. Waialo Catchment
 - Area: 49962730.884 m² ~ 49.9 km²
 - Stream length ~ 15km
 - Stream drop ~ 566m
 - b. Maniao Catchment
 - Area: 12513561.556 m² ~ 12.5 km²
 - Stream length ~ 7km
 - Stream drop ~ 204m
4. The project provided awareness sessions on the benefit of the new DJI Matrice 300 Drone with the general public including schools, community representatives and other government agencies at the 2022 International Disaster Risk Reduction Day, hosted by the National Disaster Management Office and VMGD in Eton Village, Efate. The team demonstrated the drone in flight mode, data collection and analysis, and its relevance to the event itself and the theme of the day. The sample flight operation was conducted over the village and it was also streamlined live on Facebook by the Infrastructure Coordinator. The sole activity generated a lot of interest and support for the work of the project in the Infrastructure Sector Case Study, other government agencies have requested for the VanKIRAP project to undertake LIDAR survey in the project locations. These agencies include the Department of Local Authorities (DLA), the Vanuatu Cultural Centre, Roads for Development project funded by the Australian Government (DFAT).
5. Consultant has been recruited in September 2022 to review and update the Vanuatu Road Guide and incorporate climate information to make infrastructures more resilient to current and future climate regimes. The consultant will also identify the key gaps in the current Roads Guide, include new CIS and set out a scope of review and updates, including in person workshops with Engineers and Infrastructure stakeholders. They will also hold consultations with key stakeholders.
6. Infrastructure data and sector case study information have been uploaded to the Vanuatu Climate Futures/VanKIRAP Portal. Portal CIS data activities during the reporting period: (A) Road Infrastructure: (i). Cleaning of road network dataset, (ii). Creation of road network data model, (iii). Processing of data into road network model, (iv). Delivery of Vanuatu Road Network Geo-database. From July onwards, the CSIRO infrastructure case study will be incorporating long term climate change projections to better inform the infrastructure climate information users. A mini-workshop is planned for October 2022, Data has been collected for the infrastructure sector in different areas where CSIRO will showcase the analysis in the Van-KIRAP Portal. There are also priority projects for the sector that we want to showcase in the portal also, especially the big infrastructure projects.

Issues/Challenges/Delays:

1. The procurement for the Review and Updating of the Vanuatu Road Guide was advertised publicly two times - from 28th April to 27th May. No bids were received, so it was re-advertised for another two weeks from 31st May to 15th June, however bids received did not meet the requirements. Due to the technical nature of the terms of reference and the skills required to undertake the review, it was difficult to source quality applications. SPREP Procurement approved the direct approach method to secure quality bids, the direct approach was successful and lead to the successful completion of the procurement.
2. The procurement of the service providers for the Review and Updating of the Vanuatu Road Guide was transferred to SPREP, because of capacity constraints within VMGD and PWD.
3. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Delay in approval of the Delivery Partner Agreements with SPREP Implementing Entity in 2019.
3. Funding disbursement delays in 2019 and 2020 from the SPREP Implementing Entity, delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. VMGD and PWD require procurement support, the SPREP Executing Entity has assisted in the facilitating the procurements.
2. Project Management Consultants i.e Pacific Advisory can not assist in procurement as they are a private company and not part of the Government Procurement system. This leaves a gap in project management capacity which has required additional support from the Accredited Entity.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Drone pilot certification for an additional Public Works Department Engineer.
2. Demonstration and training of the LIDAR drone for Public Works Department staff and engineers in the six provinces of Vanuatu and collection of LIDAR data and mapping.
3. LIDAR survey and data collection in the Case Study Sites and analysis of data to develop Digital Elevation Models to inform climate resilient infrastructure eg roads etc.
4. Delivery of the revised Vanuatu Road Design Guide and updated drawings for PWD use.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 2.1 - CIS implemented within target sectors

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 2.1.4: Increasing climate resilience in flood prone areas - Sarakata Flood Plain

Status

Activity started - progress on track

Implementation Progress *

60

%

Original timeline planned for this activity *

Q2 2020 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Progress in 2022:

1. The project signed a land agreement (MOU) with Mr. Wong Sze for the access and installation of the automatic river gauge on the bank of the Sarakata River. The agreement was facilitated by the Vanuatu State Law Office.
2. Data from the automatic river gauge continue to stream and are available to VMGD, the Department of Water, and national stakeholders including NDMO, and the Department of Climate Change on the public dashboard - <https://public.eagle.io/public/dash/c591gs61b7nimkf>. The information available through the dashboard include rainfall totals, rainfall intensities, water level, rate of rise, and flow rate.
3. The training workshop for VMGD and Department of Water Resources (DoWR) on the automatic river gauge (ARiG) operation, maintenance, calibration and upkeep was conducted the training in August 2022. Ten (10) project staff from VMGD and DoWR received training from the supplier.
4. Groundwater loggers have been sourced and installed at the Sarakata River in July 2022. Data is collected manually through onsite data loggers. Data on barometric and groundwater level measurements are now available to the Water Department for decision-making and planning. Training has been provided to the Department of Water staff based in Santo for the ongoing upkeep and collection of data from the groundwater monitoring equipment.
5. The staff gauges for surface water monitoring have been installed at the Sarakata River in July. One staff gauge has been installed in the same location as the automatic river gauge for calibration of the automatic system. Data collection by DoWR staff based in Luganville in Santo.
6. Two prototypes of CIS products for the water sector have been proposed and Dr. Yuri Kuleshov (BOM) has been consulted on how to best provide the delivery of the CIS products. The proto-type for the Tagabe river catchment is currently being finalized (expected to be completed in Q4). The Sarakata river proto-type will be in the form of the FMP and the EWS developed by Tokin & Taylor and finalized by Q2 of 2023. The proposed climate outlook for the water sector was introduced to DoWR managers and partners (UNICEF and WASH). The meeting acknowledged the need to promote synergies in climate services with water resources management, and proposed these points; (i). Target audience should be established for Urban Water Supplies in Vanuatu, primarily referring to Government owned water supply systems in the provincial headquarters; (ii). Van KIRAP should work in collaboration to develop climate outlooks for Urban Water Supplies, and strongly encourage the implementation of water balance determination to assist urban water resource management; (iii). Generate a generic climate outlook for the general population, including Rural Water Supplies. The Department of Water Resources has engaged the coordinator to deliver CIS information session for Water Sector Sector with support from VMGD and SPREP to assist with presentation and communication of water and climate services.
7. Inception Report completed for the Sarakata River Flood Management Plan and Early Warning System. The Inception Report can be accessed: <https://bit.ly/43SdPVn>. This report provides a review of the existing Flood Mitigation Guidelines for Sarakata, Pepsi and Solwei Areas (2011) including the evaluation and identification of gaps in terms of early warning systems and long-term climate change considerations. The review has identified the gaps across governance, institutional arrangements, observations, risk knowledge, warning dissemination, and preparedness and response.

The following recommendations are provided to address the identified gaps and to inform the development of updated flood mitigation guidelines:

• Strengthened governance and institutional arrangements, relating to:

A. Strengthened policies and institutional frameworks at the provincial level including clear roles and responsibilities.

- Clear standard operating procedures for flood early warning system management.
- Development of forums to enable coordination and partnerships.
- Update and finalise the Sarakata Flood Management Plan, including establishment of a monitoring and evaluation plan to ensure effective and coordinated governance of flood disaster risk reduction and to foster sustainable development.

B. Strengthened observation, monitoring, analysis, and forecasting, relating to:

- Additional observational equipment and supporting services and capacity.
- Inclusion of empirical models or probabilistic modelling to inform hazard and risk assessments.

C. Strengthened disaster risk knowledge, relating to:

- Adoption of hazard thresholds.
- Updating and strengthening risk assessment and risk management practices.

D. Strengthened warning dissemination and communication, relating to:

- Community-focussed warning and dissemination.
- Community-specific evacuation plans.

E. Strengthened preparedness and response, relating to:

- Training and capacity building.
- Community-based disaster risk management.
- Grass-roots level involvement.

This report will inform the development of a new flood management plan (FMP) and early warning system (EWS) for the Sarakata-Luganville catchment using the existing flood mitigation guidelines, the Sanma Province Disaster Response Plan and other relevant policies and plans. The Consultancy contract to develop the Flood Management Plan (FMP) has been signed with the FMP to be completed in mid 2023.

Issues/Challenges/Delays:

1. The groundwater loggers data are collected manually through onsite data loggers. DoWR requested the PMU to automate the data capture and communication of the data using telemetry capability, similar to the automatic river gauge (AR)
2. COVID-19 lockdown delayed the arrival of the Australian-based supplier of the automatic river gauge (ARiG) to install the equipment. The finalisation of the land agreement was also impacted due to travel bans to the outer islands including Santo - the river gauge location. The finalisation of the land agreement by the Vanuatu State Law Office was impacted by COVID-19 lockdown.
3. The COVID-19 situation globally has caused the Vanuatu government customs department to no longer waive the Customs clearance fees for government projects. This has incurred extra costs for the project budget not earlier anticipated and planned for.
4. VMGD/DoWR was not able to progress the procurement of the consultant to development of the Sarakata Flood Management Plan and Early Warning System. The SPREP Executing Entity stepped in to facilitate the procurement through the SPREP Procurement process.

5. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
3. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
4. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

Refer above Activity 1.2.1: Upgrading and expanding the Vanuatu observational networks; Sub-Activity 1.2.1.1. Enhancing stream monitoring capabilities in the Sarakata River catchment

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Upgrade the groundwater loggers to have telemetry capability so the data can be transmitted in near real-time to the Water Department HQ in Port Vila.
2. Upgrade the Tideda Database at the Water Department for the long-term storage of the data from the automatic river gauge and groundwater loggers. Develop basic hydrological services using the data aside from the Sarakata Flood Management Plan and Early Warning System.
3. Undertake a Gap Analysis Assessment on how to develop an appropriate Sarakata Flood Management Plan and Early Warning System.
4. Deliver the Sarakata Flood Management Plan and Early Warning System and undertake simulation with national and provincial stakeholders.
5. Update the VanKIRAP Portal (Vanuatu Climate Futures Portal) with Water information, data, and sector case study publications, and reports.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 2.1 - CIS implemented within target sectors

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 2.1.5: Minimizing the impacts of climate variability and change on tourism development through supporting adaptation

Status	Implementation Progress *
Activity started - progress delayed	50 %

Original timeline planned for this activity *

Q2 2020 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Progress in 2022:

1. The Tourism Climate bulletin has been developed and co-produced with VMGD and BOM. The bulletin has been received by the Department of Tourism for decision-making and planning. The August 2022 Tourism Climate bulletin can be accessed here - https://www.vmgd.gov.vu/vmgd/images/climate-media/docs/Tourism_Climate_Outlook/Tourism_Climate%20Outlook_August_2022.pdf
2. The VanKIRAP Portal has been updated with information on the Tourism Sector Case Study. Van KIRAP portal can be accessed at: <https://van-kirap.ts.r.appspot.com>. Username: test
Password: vanKirap123. Department of Tourism provided feedback to CSIRO in relation to the available iteration of the VanKIRAP portal during the in-country mission engagement late in 2022, testing and feedback.
3. The development of the Rapid Climate Risk Assessment Framework for the Tourism sector will be outsourced and delivered in 2023. The terms of reference have been finalized for procurement.

Issues/Challenges/Delays:

1. Progress on the tourism sector case study has been slow and in the last six months of the year there was no progress due to the resignation of the tourism sector coordinator. The Department of Tourism with support from VMGD recruited Mr. Kalotap to replace the outgoing Tourism Sector Coordinator - Mr. Moses Bani. Unfortunately, the Public Service Commission did not endorse his appointment as Tourism Sector Coordinator.
2. COVID-19 caused disruptions in project implementation. International delivery partners were not able to travel to Vanuatu for in person engagement with Tourism stakeholders. Domestic travel to tourism sector case study sites were not possible due to travel restrictions.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions. .
2. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
3. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. Activities for the Tourism Sector will need to be outsourced to an external service provider to meet project timelines eg Rapid Climate Risk Assessment Framework and Methodology.
2. The procurement of the Tourism Rapid Climate Risk Assessment Framework and Methodology will be transferred to SPREP for the Executing Entity to process, due to absence of a Tourism Sector Coordinator and capacity constraints within the VMGD PMU.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Information session with Tanna and Santo communities in Tourism Sector case study sites.
2. Deliver a Rapid Climate Risk Assessment Framework for the Tourism sector
3. Capacity development and awareness sessions for Tourism stakeholders on the new CIS developed for their sector including the Tourism Climate Bulletin, VanKIRAP Portal and more.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 2.1 - CIS implemented within target sectors

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 2.1.6 Site Assessments

Status

Completed

Implementation Progress *

100

%

Original timeline planned for this activity *

Q2 2020 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

All site assessments have been completed for all project locations.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

Not applicable.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 2.2: CIS is incorporated into community practices

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 2.2.1: Establishing community CIS sites

Status

Activity started - progress delayed

Implementation Progress *

70

%

Original timeline planned for this activity *

Q2 2020 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Progress in 2022:

1. Operationalization of Luganville, Nakere and Sola Community Climate Centres

All three (and current) Community Climate Centres continue to operate as normal, displaying the Climate Information Services Products on their notice board and through their networks. The PMU was able to ship in resources so that they (CCCs) continue to operate. The Project (through activity 2.2.1) was able to support the procurement and instalment of the security mesh at the Luganville Community Climate Centre. The security mesh was installed to protect valuable tools and resources within the building.

2. Site Visitation, assessment, and consultation preparations

The Community Coordinator and project team conducted follow-up site assessments and consultations with Provincial Government and communities in the (1). Saratamata, Ambae, Penama Province; Isangel, Tanna, Tafea Province and the Lakatoro, Malekula, Malampa Province in 2022. The logistical arrangements for the upcoming workshops (Climate Science 101 and CIS Community Workshop) have been completed. The agenda and the launching programs have also been developed. Unfortunately, because of the COVID lockdown, the establishment of the CCCs on the two sites, the launching and the workshops could not be conducted at the planned dates. It is expected that as soon as the lockdown is lifted, we will establish the CCCs and we will conduct the workshops on the two sites.

3. Site visitation, assessment, and consultation at Saratamata, Ambae and Lakatoro, Malekula (Proposed Community Climate Centre Sites)

The project team conducted consultations with community leaders/members, provincial government officials, NGOs, and partners for the establishment of Community Climate Centers (CCCs) in two provincial centres (Lakatoro and Saratamata). The CCCs will act as a hub strategically located for receiving Climate Information Services (CIS) from the VMGD; and further dissemination of CIS as well as building the adaptive capacity of communities/households in the uptake, use, and translation of information into action to build resilience.

The scope of work for the site visitation and assessment team is to:

- a. Conduct a final site consultation, visitation, and assessment on the two (2) proposed Community Climate Centres (CCC);
- b. Re-confirm the approval of the use of an existing structure for the establishment of the CCC;
- c. Re-confirm that the site and the building structure meet the criteria outlined by the project;
- d. Confirm office furniture/materials/resources needed for the successful implementation of the CCC based on the recommendations made during the first visitation and assessment mission;
- e. Reconfirm the appointment of focal points or the Climate Champions (CC) on the two (2) proposed sites that are to be rolled out in 2022;
- f. Undertake consultations with the communities, the Area Administrators (AA), and Community Liaison Officers (CLO) who are Department of Local Affairs (DLA) officers), Non-Government Organisation Officers (NGOs) Provincial Government Officials and National Disaster Management (NDMO) Officers on the establishment of the CCC and its function, the appointment of a CC and his/her functions, including the appropriate strategy for the channeling of CIS to communities;
- g. Confirm the appropriate schematic structure for the channeling of CIS and Sector products to communities; and
- h. Confirm the appropriate feedback mechanism to be used to provide feedback on Climate Information Services (CIS).

A detailed visitation, assessment and consultation report was prepared and submitted to PMU during the final week of February 2022. The report detailed the findings from the site visitation, and also covered the recommendations made. The recommendations, if implemented, will allow for the successful installation and operationalization of the Community Climate Centres. The recommendations are as follows:

- i. It is recommended that all materials and resources indicated in tables 6 and 8 be procured for the establishment of the two CCCs;
- ii. It is recommended that prior to the roll out of the CCC, at least one product (information product) from the sectors and from TK should be ready and made available;
- iii. All products/services from VMGD and the sectors must be simplified in the simplest form possible, allowing communities to understand the messages, including translating them (CIS products) into Bislama;
- iv. The Saratamata CCC will be the first CCC to be rolled out this year 2022, followed by Lakatoro (Malekula) and later Isangel (Tanna) CCC;
- v. All CCCs (3) will be established by the middle of 2022;
- vi. It is highly recommended that a white board, as notice board, be installed at the VMGD Saratamata Office, allowing for forecasts (short and medium) and associated advisories/warnings be displayed for the public to see;
- vii. At the completion of the setup of CCCs, a three Climate Science 101 Workshop will be conducted, followed by a two-day CIS Community Workshop. Climate Champions;
- viii. It is recommended that a plug and play Internet modem be procured to boost the internet connectivity at the two CCCs;
- ix. It is recommended that cleaning materials be purchased for the two CCCs (Saratamata and Lakatoro)
- x. It is recommended that all Area Administrators and all Community Liaison Officers within Penama and Malampa Province be part of the official launching of the CCCs and the associated and follow up workshops;
- xi. As in Sanma and Torba province, it was obvious in Penama and Malampa province that most people in the communities are fully aware of the short term (weather) forecasts and warnings issued from VMGD, including what actions to take during severe weather events such as tropical cyclones. However, medium- and long-term forecasts and their associated advisories/warnings, including ENSO conditions and CIS are not well understood. This confirms that a continuous workshops program (or awareness and outreach), be established and conducted during and beyond the life of the project to enable communities to continue to use CIS and have the skills and capacity to action information contained in the CIS. The report, and the recommendations were approved by the Project Managers and the VMGD Director.

4. The project continues to provide monthly climate briefings for the Focal Points and climate champions in all the Community Climate Centres. The briefings supply the Community Climate Centres with updates on the climate as well as forecasts for the upcoming 3 months so communities near the Community Climate Centres are prepared.

Issues/Challenges/Delays:

1. SPREP Implementing Entity terminated the services of the Community Coordinator. The implementation of the Community Climate Centres activities paused due to the termination.

2. COVID-19 caused disruptions in project implementation. Domestic travel to tourism sector case study sites were not possible due to travel restrictions.
3. The number of Community Climate Centres was reduced from 12 to 6 in the reduced project scope advised by the SPREP Implementing Entity.
4. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

1. Project restructure in 2019 introduced new conditions. The Executing Entities have diverted significant focus towards meeting conditions, and ensuring compliance with excessive Implementing Entity requirements around the project conditions.
2. Funding disbursement delays in 2019 and 2020 delayed the implementation of the activities.
3. Delay in the approval of the 2021 project extension and confirmation of funds for 2022.

Lessons Learned:

1. The project team continue to appreciate a coordinated approach to effectively deliver new Community Climate Centres working in partnership with the Department of Local Authorities, sector partners and National Disaster Management Office.
2. The VanKIRAP Community Climate Centres housed within the Provincial Government in Provincial Disaster Management Offices in all six provinces, ensure there is longterm sustainability of the climate centre beyond the lifetime of the project.
3. The establishment of Community Climate Centres as climate information hubs in the provincial and area council levels align well with the Vanuatu Government de-centralisation policy, to bring services to the people.
4. The Save the Children VCCRP project funded by the Green Climate Fund have adopted lessons learnt from VanKIRAP in the roll-out of their activities in the community level, including the establishment of additional community climate centres.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Launch the Community Climate Centres in Saratamata, Ambae, Penama Province; Isangel, Tanna, Tafea Province and the Lakatoro, Malekula, Malampa Province.
2. Establish a rainfall monitoring citizen science activity to engage with communities and schools on CIS.
3. Provide CIS information sessions for climate champions, and provincial stakeholders to increase the awareness, uptake, and application of CIS.
4. Introduce the new Provincial Traditional Knowledge Calendars to the Community Climate Centres.
5. Continue the monthly briefings for Community Climate Centre Champions and Focal Points.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 2.3: A socio-economic benefit analysis for Vanuatu using the customised Pacific CIS cost-benefit Framework is produced

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 2.3.1: Undertake a socio-economic benefit analysis for Vanuatu using the customized Pacific CIS Cost-benefit Framework

Status	Implementation Progress *
Activity started - progress delayed	55 %

Original timeline planned for this activity *

Q2 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Progress in 2022:

This Activity is led by CSIRO with technical expert support via sub-contract to CSIRO from Dr Ernesto Valenzuela (Valenzuela & Associates/ex Federation Univ). The focus is on further developing and implementing the macro-economic modelling and assessment framework developed for Van KIRAP including applications to quantify impacts of climate change on the economy of Vanuatu at national and sub-national/sectoral scale, and potentially also at household level (subject to availability of relevant economic statistics from the Vanuatu Government; specifically the Vanuatu National Statistics Office/VNSO). This Activity is also intending to provide preliminary assessment of economic benefits-costs to the national economy through the investment in and application of climate information services (CIS) to inform climate adaptation and disaster risk management planning and associated decision-making.

During the reporting period, the following activities have been conducted:

1. Identification and evaluation of relevant data from Vanuatu Government agencies (eg Vanuatu National Statistics Office (VNSO), international/regional organisations and academic reports.
 2. Signed data request form to obtain data from the Vanuatu National Statistics Office through the PMU/VMGD.
 3. Exploration of climate scenarios for macro-economic analysis of Climate Information value added using a Generalised Equilibrium Model.
 4. Preliminary macro-economic estimate of CIS value-add to national economy of Vanuatu using Macro Generalised Equilibrium Model
- Preliminary evaluations have been focused on the definitions of preferred climate scenarios for the Van KIRAP framework. Two potential scenarios are under consideration: Low emissions RCP 2.6 and High Emissions RCP 8.5. Standardised scenarios for Vanuatu for the period 2040-2059 relative to 1986-2005 for low and high emissions pathways (as per data from Activity 1.2.3). Next steps will concentrate on the definition of corresponding economic effects (damage functions) for the projected low and high emissions pathways at national and potentially sectoral/household level (see following).
5. Construction of detailed Input-Output table quantifying key Vanuatu national economy drivers (inputs and outputs) across key sectors.
- For more detailed analysis we are developing an Input-Output table which quantifies the key economic inputs and outputs at sectoral level in Vanuatu. This will potentially also enable an analysis of the cost-benefit of CIS investment/implementation by Gov of Vanuatu. Based on the evaluation of the available information and relative comparison to other relevant Input-Output available tables, we have defined a potential disaggregation of 26 sectors for the Vanuatu's Input-Output table. We will use a 2018 base year. The construction protocol will be based on the United Nations System of National Accounts 2008 (SNA) and the United Nations Handbook on Supply, Use and Input-Output Tables with Extensions and Applications.

Preliminary data has been collected from public national and international data sources during the reporting period. This exercise has led to a draft definition of relationships between industries and sectors. For completion we require specific data from the Vanuatu National Statistics Office on: (1) value of output, (2) either the ratio of intermediate inputs to output value, or the ratio of value added to output, (3) Gross value added, and in some instances (4) intermediate consumption (Sources of information: Vanuatu National Statistics Office -VNSO). The second stage will involve the compilation, processing and construction of the IO table, noting however that engagement with the VNSO is ongoing for purposes of i) execution of Van KIRAP/VNSO data sharing agreement by the PMU, and ii) accessing raw statistical data from VNSO to inform I-O table construction.

The proposed sectoral disaggregation for the I-O Table is:

- A. Agriculture
 1. Coconut
 2. Roots, vegetables, fresh fruits
 3. Kava
 4. Cocoa
 5. Coffee
 6. Others crops
- B. Animal production
 7. Cattle
 8. Other livestock
- C. Forestry
- D. Fishing
- E. Manufacturing
- F. Mining and Quarrying
- G. Food
- H. Other manufacturing
- I. Electricity and Water supply
- J. Construction
- K. Wholesale, Retail Trade and repair of Motorvehicles
- L. Other Wholesale Trade
- M. Retail Trade
- N. Transport
- O. Accommodation and Food Services
- P. Information and Communication
- Q. Finance and Insurance
- R. Real Estate
- S. Professional, Scientific, Technical, Adm/Services
- T. Government services
- U. Education, Health, Recreation, and Other Services

Reason for variation: No delay experienced

Lessons Learned:

Ease in access to data from existing sources within the Government (VNSO for example) is critical to effectively utilise CIS to make informed policy decisions.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Finalisation of the Annual Climate Information Services (CIS) Socio-economic benefit report.
2. Awareness and information session for national stakeholders on the CIS SEB report in second half of 2023.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 3.1. Traditional knowledge is incorporated into climate information services in Vanuatu

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 3.1.1: Integrating Traditional Knowledge into CIS tools and information

Status

Activity started - progress delayed

Implementation Progress *

65

%

Original timeline planned for this activity *

Q1 2020 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones and deliverables for 2022 as per 2021 APR:

1. Community consultations in Epi and Big Bay communities in mid-2022 was to collect information on Traditional Knowledge data and validate TK collated from previous missions. Community consultations were conducted in Epi, Varisu Area Council. TK data was collected within six villages, Nikaura, Nuvi and Nivenue, Niku and Maparawa. The opportunity was seized to provide awareness of the VMGD services and products, as well as new products to come through Van-KIRAP project especially Traditional Knowledge as a Climate Information tool (see bullet 2, 3 and 4 below). Networking contacts were established to ensure easy access to information during future programs. Awareness on climate change services was also discussed which are provided through the Vanuatu Climate Futures portal, to help communities make decisions on how to better adapt to current and future climate risks using a mix of traditional knowledge and science-based climate information services.

2. A draft National Traditional Knowledge Indicator Booklet was developed to assist with the communication of climate-related materials to community members. This will be used to develop provincial booklet in local language. The Vanuatu National Traditional Knowledge Booklet will be a platform, amongst other tools, providing accessibility around Vanuatu for local indigenous community. The booklet is an educational resource for all communities to return to their cultural roots and to continue practicing a more sustainable and easily interpreted material that will help them with simple but resilient decisions to safeguard them during any forecasted weather and/or climate event. highlights indigenous weather and climate forecasting knowledge of the ni-Vanuatu. This knowledge is documented and shared so that it can be used effectively in disaster risk reduction, particularly in remote and less accessible regions of Vanuatu as well as providing a national cultural resource.

Ni-Vanuatu (People of Vanuatu) have a rich cultural tradition that includes the close observation of nature. The ability to note significant changes in the natural environment has allowed generations of people living off the land to forecast and prepare for climate and weather events, such as cyclones and seasonal changes to and from the wet and dry seasons.

The knowledge depicted in the VanKIRAP National Traditional Knowledge Indicator Booklet is divided into three main sections, (A). Predictions related to the cyclone season, (B). the wet season, (C). and the dry season. Although the cyclone season and the wet season have significant overlap, we have separated knowledge directly related to cyclones from more general knowledge related to wet conditions/seasons.

3. Provincial Traditional Knowledge Seasonal Calendars developed for all six provinces in Vanuatu.

i). Malampa Province - <https://www.nab.vu/document/van-kirap-traditional-knowledge-calendars-malampa-province>.

ii). Pemana Province - <https://www.nab.vu/document/van-kirap-traditional-knowledge-calendars-pemana-province>.

iii). Shefa Province - <https://www.nab.vu/document/van-kirap-traditional-knowledge-calendars-shefa-province>.

iv). Tafea Province - <https://www.nab.vu/document/van-kirap-traditional-knowledge-calendars-tafea-province>.

v). Torba Province - <https://www.nab.vu/document/van-kirap-traditional-knowledge-calendars-torba-province> and

vi). Sanma Province - <https://www.nab.vu/document/van-kirap-traditional-knowledge-calendars-sanma-province>

4. Draft Community Traditional Knowledge Calendars for Epi community, Shefa Province; and Big Bay community Santo, Sanma Province developed. There community-based traditional knowledge and local language resources designed to complement technical climate information services deliverables and to facilitate community level capacity development for relevant community resilient development planning and implementation.

i). Malau Village, Santo island, Sanma Province - https://sprep-my.sharepoint.com/:b:/g/personal/sunnys_sprep_org/Ef-vqJ00cFBNnCyeyqY9zgBc3C3lpS_HnOYPSPHN-X-0A?e=KUPlyt

ii) Malovuko Village, Santo island, Sanma Province - https://sprep-my.sharepoint.com/:b:/g/personal/sunnys_sprep_org/EdcssJ4T4GJAnagLXFN9ZPcBGrenL4u_9hTkDc74blZyag?e=W11CRc

iii). Pelvus Village, Santo island, Sanma Province - https://sprep-my.sharepoint.com/:b:/g/personal/sunnys_sprep_org/EQBnAen00rJMIF_ihymYUfgBKbM7mPZd2dRhfgPoq0af4A?e=kYBS02

iv). Nikaura Village, Epi island, Shefa Province - https://sprep-my.sharepoint.com/:b:/g/personal/sunnys_sprep_org/ES20eqUjwhhEhRGbD24agf4BUky3patah6q5S_877iUopA?e=A6b1zq

v). Niku Village, Epi island, Shefa Province - https://sprep-my.sharepoint.com/:b:/g/personal/sunnys_sprep_org/Eemyv6RhXEJKqBXvRE6-8zUB4Lqoad55ZUale5QyifzK3w?e=dnCH6d

5. Community specific traditional knowledge services, eg the Varsu Area Council in Epi island, Shefa Province requested the project to develop a glossary outlining climate and TK information in English, Bislama and in Varsu language. Vanuatu has more than 300 languages and dialects. This glossary helps communities align TK to scientific terminologies and improve knowledge and understanding of climate in their own region/island; but also an important awareness tools for young children to learn about TK and its application in managing climate risks. The Varsu Dialect Glossary is available here:

https://sprep-my.sharepoint.com/:b:/g/personal/sunnys_sprep_org/EUfKeFrCu_hHiYcbFgMOQD0BWD92QM90Gv4jMkvJufeQkg?e=6dofav. The project has similar community products developed for other project locations.

6. Partnerships were formalised to enable a mobile app, based on an existing Australian system, to be developed to assist with rapid collection of TK monitoring data (development funded under the COSPPac2 project). This app will enable all Ni-Vanuatu to participate as citizen scientists in the project. The first release of the app was tested both within and outside of Vanuatu and comments sent to the developers in preparation for the general release in 2023. A planning meeting was held with VMGD, SPREP and the app coordinators (EarthWatch) to finalise the app role out and communication plan.

An additional grant was sort and awarded by the Global EbA Fund to cover the costs of training and implementation of the app (as this app was not funded under the Van-KIRAP project). Draft documentation required for the app, including 29 species identification guides (see: https://sprep-my.sharepoint.com/:f:/g/personal/sunnys_sprep_org/EmcDfHUCvXVCSzqmFz0_5sMB_oweCOGf5mreMXQ-IuzqxQ?e=7jaWs2), was developed and approved by the relevant Sectors and partners. Training of VMGD TK staff on how to use the app was provided in October 2022. Once the ClimateWatch Vanuatu app fully tested, training of VMGD staff and partners in the use of the app will be undertaken before the app becomes available for general community use, including with the Volunteer Rainfall Network/VanKIRAP Citizen Science Rainfall Monitoring Program (see Activity 3.2.1.2).

Issues/Challenges/Delays:

1. COVID-19 travel restrictions impacted on the community engagements and paused the advancement of the TK work for months. International travel for

BOM and SPREP TK officers to support VMGD in person was interrupted. The communications and coordination of the TK work between actors in Vanuatu, Samoa and Australia was transfer online via virtual teleconferencing.

2. The Vanuatu Government email and financial system was hacked and therefore procurements and payments through VMGD was slow and impacted on planned activities for 2022.

Reason for variation:

As above.

Lessons Learned:

1. The recruitment of a second traditional officer has helped progress the traditional knowledge work significantly in the last 12 months.
2. Vanuatu will be the first in the Pacific to adopt the Climate Watch App developed by Earthwatch, and through citizen science accelerate the collection of TK monitoring data from across the country. The app will be rolled out in all the six Community Climate Centres in Vanuatu established by the project. Information sessions will be provided to community users of the App and this awareness/outreach is important to ensure uptake of the app and broad understanding of the need to capture TK.
3. Collection of TK monitoring data using the current methods takes time and resources. TK data collectors will require in person visits to the communities and TK sites for data to be recorded and verified.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Finalise the National Traditional Indicator Booklet.
2. Finalise the Community Traditional Knowledge Calendars for Epi and Big Bay community.
3. Develop a Standard Operating Procedure (SOP) for Traditional Knowledge related components, including process for traditional knowledge forecasts for VMGD.
4. Formalise partnership for the delivery of the Climate Watch App Vanuatu for the all Ni-Vanuatu (all people) to participate in citizen scientists in the project.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 3.2. Development of CIS tools and information products

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 3.2.1: Developing CIS tools and information products for target end-users; Sub-activity 3.2.1.1. Customising CIS decision support systems (DSS) for target sectors and communities

Status	Implementation Progress *
Activity started - progress delayed	55 %

Original timeline planned for this activity *

Q3 2020 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones and deliverables for 2022 as per 2021APR:

This activity involves the use of relevant hazard, vulnerability, exposure, (See: Activity 1.2.4: Risk-based coastal and other climate hazard analysis and mapping;), adaptive risk assessment and associated mainstreaming methodology around the region including Australia (eg Australia's Climate Ready and Coast Adapt web tools) to provide new Decision Support Systems tools to assist communities access to and support the application of science-based climate information services into climate change adaptation and disaster risk reduction.

This includes development of a Rapid Climate Risk Assessment Framework and Methodology for Vanuatu, where appropriate, with updated climate hazard hotspots risk assessments developed by CSIRO for climate sensitive sectors eg Agriculture, Tourism, Fisheries, Infrastructure and Water. The sectoral Decision Support System tools for sectors will include standardised risk assessment methodologies, guidance materials and visualised databases in print and electronics formats where appropriate.

Terms of reference developed for the development of the Vanuatu Rapid Climate Assessment Framework and Methodology focussing on the Tourism and related Fisheries and Infrastructure sectors. The procurement will be processed through SPREP in 2023. The objectives of the consultancy services are: (a). Undertake stakeholder consultations with all relevant stakeholders including and not limited to SPREP, Vanuatu Meteorology and Geo-Hazards Department (VMGD), Department of Tourism (DoT), the Vanuatu Tourism Office (VTO), Public Works Department (PWD), the Department of Ge-ology and Mines, the Department of Ports and Harbor, the Vanuatu Chamber of Commerce and In- dustry, the Reserve Bank of Vanuatu, The Department of Finance and Treasury, Commonwealth Scientific Industrial Research Organization (CSIRO), Department of Climate Change (DoCC), National Disaster Management Office (NDMO), Department of Environment Protection and Conservation (DEPC) etc to confirm scope, identify needs, contributions and roles in the climate risk framework. (b). Develop a rapid climate risk framework and methodology for Vanuatu. (c). Apply the rapid climate risk framework and methodology for Vanuatu to sector case study – Tourism (site to be selected eg Santo and Tanna) and associated infrastructure and fisheries sectors. (d) Develop climate risk framework guidelines and provide training to relevant stakeholders. (e) Develop a financial protection mechanism to assist in the development standard cost analysis for tourism investments.

As part of informing activity 3.1.1 (Traditional Knowledge) and associated sub-activities, informed by input during the review workshop, a set of initial prototypes was developed incorporating climate information science with TK information products that could be used for communication purposes to drive greater engagement from the community on preparedness and response to climate extremes. By combining TK indicators with climate science the aim is to promote and protect TK and drive uptake of planning and preparedness activities.

A review was commenced on impact of climate variability and climate change on the national TK indicators used in Vanuatu and a draft document produced and shared with VMGD (including supporting materials). Project team is working with VMGD to obtain historical biological data, e.g. flowering and fruiting information, to both aid the development of TK climate forecasts and to be used in communication materials around the impacts of climate variability and change on food sources. Some good partnerships have been developed and some sharing of data has been achieved.

Issues/Challenges/Delays:

1. This activity is delayed as it is dependent on the availability of relevant hazard, vulnerability, exposure, (See: Activity 1.2.4: Risk-based coastal and other climate hazard analysis and mapping;)
2. The 6-month pause in the CSIRO work programme for January to June 2022, impacted the timely delivery of this activity.
3. COVID-19 caused delays in the implementation of this activity. International and domestic travel was interrupted.

Reason for variation:

1. This activity is delayed as it is dependent on the availability of relevant hazard, vulnerability, exposure, (See: Activity 1.2.4: Risk-based coastal and other climate hazard analysis and mapping;)
2. The 6-month pause in the CSIRO work programme for January to June 2022, impacted the timely delivery of this activity.

Lessons Learned:

1. The rapid climate risk assessment framework and methodology will be an important milestone achievement in the standardising risk assessments in Vanuatu.
2. The VanKIRAP Sector Case Study for Tourism, Infrastructure and Fisheries will be used to trial the new framework and methodology.
3. Tourism investments will be climate proofed through the new framework and methodology and a financial protection mechanism will be recommended.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Develop a Rapid Climate Risk Framework and Methodology for Vanuatu focussing on the Tourism sector and related Fisheries and Infrastructure sectors.
2. Next steps will include sourcing broader input from the Van-KIRAP project team, particularly the TK expertise in Vanuatu and SPREP to provide input. VMGD TK team to ensure a list of all relevant TK indicators is compiled and shared with BOM so that links between the species and climate and the anticipated impacts of climate change can be researched and documented. VMGD to complete their components of the National Indicator Booklet.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 3.2. Development of CIS tools and information products

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 3.2.1: Developing CIS tools and information products for target end-users; Sub-activity 3.2.1.2. Suite of forecast-based CIS ground-truthed, operationalised and outreached with Next/End-Users

Status

Activity started - progress delayed

Implementation Progress *

55

%

Original timeline planned for this activity *

Q3 2022 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Key milestones and deliverables for 2022 as per 2021APR:

1. Traditional Knowledge and CIS forecast training was co-delivered by BOM and SPREP for VMGD staff in November 2022. Five staff received training on forecast validation, forecast skills and the process for issuing a forecast.
2. Expansion of the paper-based TK monitoring through the scoping of collection of TK indicator data through the use of apps. This would allow for rapid collection of data that will be used for groundtruthing and forecast model development, as well as an outreach mechanism for end users. This included meetings with app managers, Earthwatch, to augment an existing Australian app called ClimateWatch. This app will be used to capture traditional and local knowledge, to assist the Vanuatu TK lead to integrate with TK forecast information with existing climate forecasts and products. This approach involves the communities and provides them with an easy way to feed information into the Van-KIRAP project, as well as receiving and accessing information. This app will enable all Ni-Vanuatu to participate as citizen scientists in the project. The first release of the app was tested both within and outside of Vanuatu and comments sent to the developers in preparation for the general release in 2023. A planning meeting was held with VMGD, SPREP and the app coordinators (EarthWatch) to finalise the app role out and communication plan.

An additional grant was sort and awarded by the Global EbA Fund to cover the costs of training and implementation of the app (as this app was not funded under the Van-KIRAP project). Draft documentation required for the app, including 29 species identification guides (see: https://sprep-my.sharepoint.com/:f:/g/personal/sunnys_sprep_org/EmcDfHUcVxVCszqmFz0_5sMB_oweCOGf5mreMXQ-UzqxQ?e=7jaWs2), was developed and approved by the relevant Sectors and partners. Training of VMGD TK staff on how to use the app was provided in October 2022. Once the ClimateWatch Vanuatu app fully tested, training of VMGD staff and partners in the use of the app will be undertaken before the app becomes available for general community use, including with the Volunteer Rainfall Network/VanKIRAP Citizen Science Rainfall Monitoring Program (see Activity 3.2.1.2).

Issues/Challenges/Delays:

1. This activity is delayed as it is dependent on the availability of relevant hazard, vulnerability, exposure, (See: Activity 1.2.4: Risk-based coastal and other climate hazard analysis and mapping;)
2. The 6-month pause in the CSIRO work programme for January to June 2022, impacted the timely delivery of this activity.
3. COVID-19 caused delays in the implementation of this activity. International and domestic travel was interrupted.
4. Dependencies to Sub-activity 3.2.1.1 having a paper-base system for monitoring already in place, reduces the risk of not having monitoring data available for ground-truthing.
5. TK monitoring data collected by VMGD from 2018 to 2022 need to be fully entered into the VMGD Traditional Knowledge database to support the ground-truth process.

Reason for variation:

As above.

Lessons Learned:

None specific to this activity

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Work on processes and procedures for previously scoped methods to ground-truth and operationalise TK CIS and to continue to integrate with user needs and requirements.

App and associated training will be designed to enable all Ni-Vanuatu to contribute as citizen scientists, this includes the elderly, youth, disabled, all genders. Once app is fully developed and tested, training on use of the app will commence before it is ready for use by the community.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 3.3. Implementing knowledge management, engagement and outreach across Sectors and Communities

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 3.3.1: Knowledge management, communication and outreach

Status	Implementation Progress *
Activity started - progress delayed	50 %
Original timeline planned for this activity *	
Q2 2020 to Q4 2021	
Please refer to the Implementation Timetable in the log-frame	
Progress for the relevant reporting period	
<p>Key milestones and deliverables for 2022 as per 2021 APR:</p> <ol style="list-style-type: none"> 1. The project conducted a SWOT analysis of the sector audiences and VMGD's communications and produced a report on its findings. 2. The project developed a Communication and Engagement Strategy and Action Plan, finalized in September 2022 following consultations with all project stakeholders. 3. A short video was developed on the deployment of the first SOFAR Spotter Ocean buoy off Ifira Island, on Efate in June 2022. Video can be accessed on the SPREP Youtube channel - https://www.youtube.com/watch?v=zKW07neeYgc. A media release and social media post was part of the communications and was published in the Vanuatu Daily Post newspaper. See https://www.dailypost.vu/news/deployment-of-new-climate-monitoring-buoy-network-begins/article_127796cd-914c-52ce-ad22-e1db156160ea.html. A second 3-minute video in Bislama about the Project's support for a new LIDAR Drone for the infrastructure. 4. Recruitment of the communications officer is completed on 8th November 2022, and Ms Ellian Bangtor will increase the capacity of the project communications. 5. Procurement is underway for the (a) VMGD Website upgrade, videographer, and graphics designer to support the development of print and digital communications products for the project. 6. Establishment of a toll-free number 116 for people to receive CIS. 7. Establishment a new CIS email newsletter focussing on delivering CIS resources to external audiences. This first issue about VMGD's declaration of a La Nina event was sent on 27 September 2022 to 276 subscribers. 8. Establishment of a new Project Update email newsletter aimed at internal stakeholders' audiences. The first issue was sent to 350 subscribers. 9. The National Statement on Climate and Tropical Cyclone Outlook was released by VMGD on 1 November. VanKIRAP supported this by: <ol style="list-style-type: none"> i. Published a Climate Watch email newsletter, sending to 380 subscribers with an open rate of 25.53%. ii. Published a Bislama summary post on the Project Facebook page. It reached an audience of 534 and an engagement rate of 8.6%. 10. The first seminar for upskilling Project members in communications best practices was held on 8 December. The topic was 'The basics of good Photography: How to take better photos for your work'. The session was attended by the Sector Coordinators and PMU staff. 11. Project continues to communicate project content is produced in Bislama and English depending on the characteristics of the audience of the particular publication channel chosen. Posts to the Project Facebook page are mostly published in Bislama, while media releases and other content that might have an audience external to Vanuatu (e.g. non-ni-Vanuatu SPREP staff, CSIRO) are published in English. Follow the project's social media page here https://web.facebook.com/VanKIRAP <p>Issues/Challenges/Delays: NA</p> <p>Reason for variation: No delay experienced</p> <p>Lessons Learned:</p> <ul style="list-style-type: none"> - Vanuatu has 138 different languages. Translating project messaging into Bislama is ensuring greater accessibility to project information and services, and highlights of climate information products/services available to communities. - While national outreach and awareness of the project has been well received, there needs to be broader visibility beyond the national level of the key achievements of this project. 	
Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.	
Key milestones and deliverables for the next reporting period	
<ol style="list-style-type: none"> 1. Development of 9 x 2min explainer videos on the CIS and sector applications 2. Deliver the revised VMGD website in 2023 3. Establish an SMS communications mode for the delivery of CIS via text messages to project audiences and community representatives around the Community Climate Centres. 4. VanKIRAP in partnership with BOM and COSPPac Project delivered a communications training for VMGD and sector stakeholders in October 2022. 5. Produce a research proposal for an audience baseline survey and report on findings. 	
Please include a list of key milestones and deliverables expected to be executed in the next reporting period.	

Project Output Name *
Output 4.1. Institutional capacity to implement CIS across sectors strengthened
The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.
Project Activity Name *
Activity 4.1.1: Strengthening CIS coordination and response mechanisms for target sectors

Status	Implementation Progress *
Activity started - progress delayed	50 %
Original timeline planned for this activity *	
Q1 2018 to Q4 2021	
Please refer to the Implementation Timetable in the log-frame	

Progress for the relevant reporting period

This seeks to strengthen and build capacity at government, sector and community levels to access and use climate information services (CIS) in policy, planning and decision-making. It is recognised that there are current CIS tools and products available, which if delivered with suitable interpretation, can assist Sectors and communities plan for and build resilience to the impacts of climate variability and change.

Key milestones and deliverables for 2022 as per 2021 APR:

1. Memorandum of Understanding (MOU) between the Vanuatu Meteorology and Geo-Hazards Department and the five target sectors, namely Agriculture, Fisheries, Tourism, Infrastructure and Water for the coordination, climate data and information products sharing and sector responses have been updated. The MOUs were developed by the project in 2018, but required updating to new project end date i.e December 2023. The MOUs support and facilitate strengthening of climate information services activities provided through the project under each sector case study.
2. In recognising the important function that VanKIRAP Sector Coordinators play in the strengthening CIS coordination and response across sectors, the Department of Agriculture and Rural Development has mainstream the Agriculture Sector position into their government structure with full funding for that position from the departments annual budgets. Mr. Pakoa Leo's (VanKIRAP Agriculture Sector Coordinator) appointment has been approved by the Vanuatu Public Service Commission and will start in his new role in 2023 and will continue to coordinate VanKIRAP activities until the project closure. This important achievement will allow the coordination of CIS and sector response to be sustainable beyond the project lifetime. Likewise in the Tourism Department, the Tourism Act is under review and it has been identified that a new Tourism Coordinator for Climate (CIS) will be included in the new legislation to reflect the importance of CIS play in tourism investments, climate change adaptation and disaster risk reduction for tourism operators.
3. Van KIRAP portal beta version was user tested by VMGD and sector users. Feedback from Vanuatu stakeholders were received and recorded for the next development and enhancement of the portal usability and functionality. The portal activity to enhance the digital visualisation, spatial referencing and overall utility, functionality and accessibility of the CIS products delivered by CSIRO for Van KIRAP/Vanuatu users via the portal.
4. The Technical Working Group (TWG) continue to meet on a regular basis to coordinate and strengthen the CIS uptake and application in sector response mechanisms. In July 2022, the Executing Entities with prior approval from the Chairman convene the Fifth Technical Group (TWG-5) meeting. The TWG delivered on enhancing the utility of CIS in the sector and last mile communities as well as progressing the actions for the implementation of the C-band Doppler Weather Radar and requirements.
5. VMGD highlighted requests for data from the Met Services to be able to utilise the data in discussions with sectors. It was noted the value of a platform whereby data could be accessed directly would be beneficial. The Department of Water has requested the real-time data be streamed to the department to enable them to effectively monitor rainfall and drought-stricken areas. It was noted there is a data sharing agreement in place which enables access to data by personnel. VMGD have approval from Government to have a cost-recovery aspect to accessing data. The Sarakata Flood Management Plan and Early Warning System Public Dashboard (see Activity 2.1.4 Increasing Resilience in flood prone area - Sarakata Flood Plain; and Activity 1.2.1: Upgrading and expanding the Vanuatu observational networks; Sub-Activity 1.2.1.1. Enhancing stream monitoring capabilities in the Sarakata River catchment).
6. The project capacity development, awareness and training on CIS to strengthen the capacity of VMGD and sectors are outlined in Activity 4.2.2: Establishing a mentoring programme to strengthen capacity and knowledge.

A training and mentoring plan for the project has been developed to guide the strengthening of capacity and knowledge.

1. Project has supported the Public Works Department with training on the use of the DJI Matrice 300 Drone with LIDAR capability. Five people received the training.
2. Project supported two Public Works Department officers to get certification from New Zealand on Drone Pilot which is accepted worldwide and in Vanuatu.
3. Project-supported training for the Department of Water Resources in the use and installation of an automatic river gauge.
4. Project-supported training for the Vanuatu Meteorology and Geohazards Department on traditional knowledge forecasting and the protocols for collecting TK data in communities.
5. Project provided training for VMGD and sector users on communications and photography for science.
6. Project provided training for project stakeholders on the use of the VanKIRAP Portal (Vanuatu Climate Futures).
7. Project provided field/hands-on refresher training for VMGD technicians in the installation of climate observation systems in November 2022.

Issues/Challenges/Delays:

1. Delay in the design of the sector and end-user survey by the Communications Coordinator (under communications activity) to establish a baseline, align end-user needs with CIS and provide demand-driven CIS.

Reason for variation:

As above.

Lessons Learned:

1. Technical Working Group (TWG) remains an essential coordinating mechanism for CIS for VMGD and all sector partners. Sector ownership, support and buy-in has been valuable through the TWG meetings.
2. The VanKIRAP Sector Coordinators functions and roles has been widely acknowledge by government as crucial in CIS coordination and response mechanisms for target sectors. Department of Agriculture and Tourism are in course to embed the Sector Coordinator function into the government organisation structures. This is also the case for VMGD, that have absorbed the VanKIRAP Electronics/Instrument Engineers into the VMGD organisation structure.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Finalise the Vanuatu Climate Futures Portal (VanKIRAP Portal) and official launch for users to employ.
2. CIS coordination to continue through the VanKIRAP Technical Working Group (TWG) meetings.
3. Undertake an end-user survey (under communications activity) to establish a baseline, align end-user needs

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 4.1. Institutional capacity to implement CIS across sectors strengthened

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 4.1.2: Building institutional and project capacity in Monitoring and Evaluation, Environmental and Social Safeguards and Gender

Status	Implementation Progress *
Activity started - progress delayed	85 %

Original timeline planned for this activity *

Q1 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period

Progress in 2022:

1. The project continues to implement the Monitoring and Evaluation Plan including the collection of data since the 2021 APR.
2. The Environmental and Social Safeguards Plan draft has been completed by the consultant, Mr. Peter King but it requires to be tabled at the Technical Working Group (TWG) and Steering Committee for approval of the recommendations. This is a key requirement to secure the Vanuatu NDA endorsement of the updated ESSP. During the reporting period, the implementation of the ESSP has been on hold until the approval of the plan by SPREP, Vanuatu NDA and GCF.
3. Gender Assessment and Gender Action Plan has been implemented in associated with project activities. All procurements has clauses for consultants and service providers to adhere to the project Gender Action Plan. Community consultations undertaken by the project in 2022 has followed the recommendations outlined in the GEDSI implementation plan.
4. The project is working with consultants from the University of Newcastle to develop a science paper based on gender consultations undertaken by the project in key pilot sites in Santo and Tanna. The paper will discuss the experiences of women in Vanuatu to build a greater understanding of the impacts of climate change on women's lives in one of the most disaster risk countries in the world. In focus groups conducted in 2021 with women in five communities across Vanuatu, women shared their experiences in dealing with climate change, the impacts on food production and food security and the gendered societal expectations that shape the complexity of women's experiences. We note the way gender relations build on climate change impacts to shape the lives of Vanuatu women. In so doing we highlight the expressed desire of women to bring their experiences of climate change to the international community and to be part of the critical global conversation on climate change.

Issues/Challenges/Delays:

1. Awareness of the GEDSI plan and its implementation needs to be improved. Project staff has requested for GEDSI training to improve their understanding of GEDSI and how to effectively implement the project GEDSI plan.
2. The project need to identify a GEDSI lead to coordinate gender activities.

Reason for variation:

As discussed above.

Lessons Learned:

1. VMGD and sectors require capacity building in this area, to enable their ability to effectively support the project team in mainstreaming GEDSI across all activities.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Undertake GEDSI training and information sessions for VMGD and the five sectors.
2. Key milestones and deliverables include the implementation and incorporation of the safeguards and gender into the Project activities, and quarterly reporting from the Executing Entity against the M&E Plan, Safeguards and Gender Plans.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 4.2. Training of personnel leads to strengthening of institutional capacity

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 4.2.1: Training packages building knowledge and skills in meteorology and climate tools

Status	Implementation Progress *
Activity started - progress delayed	50 %

Original timeline planned for this activity *

Q4 2019 to Q4 2021

Please refer to the Implementation Timetable in the log-frame

Progress for the relevant reporting period**Progress in 2022:**

This activity made progress in terms of the training delivery with sectors and Community Climate Centres. The project Climate Information Services (CIS) Training Manual developed in 2019 is the primary knowledge building resource that is employed in the trainings for sectors and Community Climate Centres. Copy of the CIS Training manual is available here - https://sprep-my.sharepoint.com/:f:/g/personal/sunnys_sprep_org/EoTPegSoFwNFKat-kVdCi_sBUT66Q7pfeTOGgBwn_MGCcg?e=CMYKpg

At the sector level, the following training was undertaken:

- i). Training on the Vanuatu Climate Future Portal was undertaken in October 2022 by project, NGIS and CSIRO (see Activity 1.1.2/Sub-Activity 1.1.2.3 Vanuatu Climate Futures Portal for delivery of climate change projections and Activity 4.1.1: Strengthening CIS coordination and response mechanisms for target sectors. The training and awareness session with VMGD, Ministry of Infrastructure and Public Utilities (MIPU), National Advisory Board (NAB), Department of Agriculture and Rural Development, Vanuatu Fisheries Department, Department of Tourism, Department of Water Resources and SPREP.
- ii). Training on the climate database CLIDE was provided for VMGD and climate staff by BOM. A 'Register' key-entry page was added to CLIDE and data backed-up to Cloud through Amazon Web Services (see Activity 1.1.1)
- iii) Training on the Southern Hemisphere Tropical Cyclone Portal and the development of the Vanuatu Tropical Cyclone Outlook for 2022-2023 (see Activity 1.2.2 Improved utility and function of seasonal climate forecasts).
- iv). Training was provided for Fisheries stakeholders on the utility of the Fisheries Climate Outlook bulletin, requirements of marine protected areas and early warning system for marine heat waves on 11 October 2022 (see Activity 1.2.2 Improved utility and function of seasonal climate forecasts). About 10 participants attended the session.
- v). Department of Tourism received training from the project on 14 April 2022 on climate monitoring products eg Vanuatu Climate Update, Ocean Outlook and the new Tourism Climate Outlook bulletin. About 7 participants attended the session.
- vi) Training was received from BOM on the user testing of the Climate Watch Vanuatu App. The training was undertaken in October 2022. About 20 people attended the training.
- vii). SPREP in partnership with the Republic of Korea Climate prediction project/VanKIRAP deliver a training on Seasonal Climate Prediction for VMGD staff in November 2022. The training focussed on the use of dynamical climate prediction models such as CLIKP (Climate Prediction Toolkit for the Pacific) and PICASO. 15 participants received training from the projects and SPREP.
- viii). A training on the use of the OSCAR CIS online tool was undertaken by APCC in December 2022. 26 people attend the training representing VMGD, DARD, DoCC, PMU and SPREP.

At the Community Climate Centres and last mile level, the following training and knowledge transfer was undertaken:

There were 3 trainings undertaken in 14th of February 2022 and ended on the 27th of February 2022. Three (3) day workshop with Climate Champions, Provincial Government and Civil Societies in the area for the (i). Saratamata, Ambae island, Penama Province (ii) Lakatoro, Malekula island, Malampa Province and Isangel, Tanna island, Tafea Province. About 15-25 participants from each area participated, consideration was given to gender as well as special needs groups.

Issues/Challenges/Delays:

1. The project encountered challenges in the delivery of training in 2022 as a continuous impact of COVID-19 and related travel restrictions.

Reason for variation:

As above.

Lessons Learned:

1. The project delivered training virtually through webinars and online taking in consideration the COVID-19 and associated travel restrictions, which has been a feasible alternative to face to face training.
2. In person and face to face trainings and knowledge sharing information sessions were possible before and after COVID-19 lockdown, and it is important to monitor the difference in training outcomes between virtual/face-to-face modes.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Continue to deliver training to sectors and community climate centres.
2. Deliver specialised training required for the sustaining new CIS platforms and services for targeted sectors.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

Project Output Name *

Output 4.2. Training of personnel leads to strengthening of institutional capacity

The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.

Project Activity Name *

Activity 4.2.2: Establishing a mentoring programme to strengthen capacity and knowledge

Status	Implementation Progress *
Activity started - progress delayed	50 %
Original timeline planned for this activity *	
Q4 2019 to Q4 2021	
Please refer to the Implementation Timetable in the log-frame	
Progress for the relevant reporting period	
<p>Progress in 2022:</p> <p>A training and mentoring plan for the project has been developed to guide the strengthening of capacity and knowledge.</p> <ol style="list-style-type: none"> 1. Project has supported the Public Works Department with training on the use of the DJI Matrice 300 Drone with LIDAR capability. Five people received the training. 2. Project supported two Public Works Department officers to get certification from New Zealand on Drone Pilot which is accepted worldwide and in Vanuatu. 3. Project-supported training for the Department of Water Resources in the use and installation of an automatic river gauge. 4. Project-supported training for the Vanuatu Meteorology and Geohazards Department on traditional knowledge forecasting and the protocols for collecting TK data in communities. 5. Project provided training for VMGD and sector users on communications and photography for science. 6. Project provided training for project stakeholders on the use of the VanKIRAP Portal (Vanuatu Climate Futures). 7. Project provided field/hands-on refresher training for VMGD technicians in the installation of climate observation systems in November 2022. <p>B. Mentorship programs with other Regional & National Met Services have not been possible due to Covid restriction.</p> <p>Issues/Challenges/Delays:</p> <ol style="list-style-type: none"> 1. COVID-19 and associated travel restrictions. <p>Reason for variation:</p> <p>As above.</p> <p>Lessons Learned:</p> <ol style="list-style-type: none"> 1. The project delivered training virtually through webinars and online taking in consideration the COVID-19 and associated travel restrictions. 2. In person and face to face trainings and knowledge sharing information sessions were possible before and after COVID-19 lockdown, and it is important to monitor the difference in training outcomes between virtual/face-to-face modes. 	
Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.	
Key milestones and deliverables for the next reporting period	
<ol style="list-style-type: none"> 1. Climate information services roadshow in Tanna, Malekula, and Ambae in the Community Climate Centres (provincial and area council level). 2. Mentoring training for VMGD technicians on automatic weather station systems, installation procedures, and maintenance and upkeep. 	
Please include a list of key milestones and deliverables expected to be executed in the next reporting period.	

Project Output Name *	
Output 5.1. Project objectives achieved through effective project management	
The output name should match with the output reported in the sub-section 2.4.3. If you have multiple activities to be reported against one output, you need to write down the same output name for every activity.	
Project Activity Name *	
Activity 5.1.1 PMU established and providing overall management and coordination of Project activities	
Status	Implementation Progress *
Activity started - progress on track	70 %
Original timeline planned for this activity *	
Q2 2018 to Q4 2021	
Please refer to the Implementation Timetable in the log-frame	

Progress for the relevant reporting period

Progress in 2022:

1. In light of the Mid-term Review (MTR), the two PMUs have now co-located at VMGD and has improved project and activity coordination. The SPREP Executing Entity has increase its support to VMGD in relation to large procurements which have not been progressed due to capacity constrains in the VMGD PMU.
2. The Project Management Consultants recruited by the SPREP Implementing Entity, Pacific Advisory started in April 2022 to assist with project management of the project on the ground in Vanuatu.
3. The Project Intergrity Review by GCF is currently underway. SPREP and VMGD provided input into the review.
4. Audit: SPREP has also cleared the VMGD audit for accounts in 2021.
4. At the Executing Entity level, the PMU's have implemented a progress tracker "Traffic Light Reporting System" which has been effective in the coordination and tracking of performance for the team on-ground. Furthermore, the reporting of progress to the Project Steering Committee (PSC) and the Technical Working Group has been made more efficient due to this system.
5. The SPREP Implementing Entity provided finance training to VMGD and SPREP Finance officers. Two officers gain new knowledge and skills from the training conducted by SPREP Finance Accountant, Mr. Alvin Sen.
6. Project Steering Committee (SC): The PSC meeting was tentatively scheduled on the 25th August 2022. However due the Chairlady postponed it due to low confirmations and not meeting the quorum. SPREP PCU also requested the meeting be rescheduled and the agenda to be revised. Furthermore the work plan and budget was not ready in time for the PSC to endorse.
7. Project Calendar of Events: The SPREP PMU has developed a shared calendar for events with SPREP PCU, PMU and Pacific Advisory. This calendar is to assist in the coordination of activities and linkages between the internal delivery partners and VMGD and sectors.
8. VanKIRAP Engagement Information (APR): The SPREP and VMGD PMU provided SPREP PCU with the VanKIRAP Engagement Information for 2019-2022 on the 31st August 2022.

Issues/Challenges/Delays:

1. The VMGD PMU noted a challenge has been the flow of disbursement of funds from SPREP to enable activities to take place.
2. The issues within the VMGD PMU in terms of financial management capacity, have been highlighted previously and were again a highlight throughout the SPREP Implementing Entity mission in October 2022. The gaps in expertise and skillsets will require additional support to be identified by VMGD and SPREP Implementing Entity. Despite the engagement of project management advisory support, this has not strengthened this capacity.
3. The hack that affected the Vanuatu Government email and financial systems presented a major challenge for the PMU to implement activities especially workshops, trainings and missions to the outer islands and abroad.

Reason for variation:

As above.

Lessons Learned:

1. The IE needs to review the relevance of project management advisory services, in terms of the value added in progressing project management constraints.

Provide an updated progress on this project activity for the relevant reporting period, including delays and issues encountered, the reason for differences between the planned implementation progress and actual implementation progress, key milestones reached, and lessons learned, including issues related to non-compliance with GCF standards or conditions, vis-à-vis expectations, if any. In parallel, include positive achievements and better-than-expected results.

Key milestones and deliverables for the next reporting period

1. Facilitate the Steering Committee approval of the 2022 - 2023 work programme.
2. Implementation of the 2022 - 2023 work programme, and quarterly reporting.

Please include a list of key milestones and deliverables expected to be executed in the next reporting period.

2.4 Progress Update on the Logic Framework Indicators

Under this section, please report the 'annual value' for the reporting year only (for example, during 2022 only). Also report 'cumulative value' achieved as of the end of the reporting year as well as 'baseline', 'midterm target', 'final target', and 'expected lifetime emission reduction target'. Please note that the baseline and the respective target values should be reported for the total funding amount (GCF funding and co-financing) of the project. Also note that all these values should reflect information from the most recent/updated logical framework (logframe) agreed to with the GCF, whether through the FAA amendment process, submission and approval of the inception report, baseline assessment/study, APRs, and/or correspondence with GCF's portfolio managers on any logframe changes. If the most updated logframe deviates from that approved in the funding proposal, please provide clarification as to why there have been changes for each applicable indicator in the 'Remarks' box. For example, the clarification may include but is not limited to: 'the logframe was revised during the FAA negotiation process' or 'a baseline assessment has been completed as of August 2022 and the assessment has been submitted to the GCF for approval' or 'the revised baseline and target values have been submitted via the previous APR cycle and approved by the GCF' or 'the project logframe is being revised, and the FAA amendment process is currently ongoing with the GCF' etc. In case where a measurement methodology has been revised in agreement with the GCF for any indicators in the logframe, please attach supporting documentation describing the calculation methodology of all applicable indicators in APR Section 5 'Annexes and Attachments'.

This sub-section 2.4 is not applicable for REDD+ Results-Based Payments Projects. Please write 'Not Applicable' as the response.

2.4.1 Core Indicators

Select applicable core indicators

- Mitigation Core Indicator 1 - Tonnes of carbon dioxide equivalent (tCO₂e) reduced as a result of GCF funded project/programme
- Mitigation Core Indicator 2 - Cost per tCO₂e decreased for GCF funded project/programme
- Mitigation Core Indicator 3 - Volume of finance leveraged by GCF funding (Disaggregated by public/private source)
- Adaptation Core Indicator 1 - Direct Beneficiaries of GCF funded project/programme
- Adaptation Core Indicator 2 - Indirect Beneficiaries of GCF funded project/programme
- Adaptation Core Indicator 3 - Number of total beneficiaries relative to total population

Adaptation Core Indicator 1 - Direct Beneficiaries of GCF funded project/programme (Units: number of individuals and percentage %)

Please provide the "annual value" of the number of direct beneficiaries who benefitted from GCF funding only during the reported calendar year. The 'Cumulative Value' refers to the total ex-post number of direct beneficiaries on a cumulative basis. Please note that all values should be based on total funding (GCF funding and co-financing).

Baseline	Baseline (% of female)
0	0 %
Annual Value (Reporting Year)	Annual Value (% of female)
Cumulative Value	Cumulative Value (% of female)
622	26 %
Mid-term Target	Mid-term Target (% of female)
13 585	46 %
Final Target	Final Target (% of female)
53 362	48 %
Remarks (including changes, if any)	

Adaptation Core Indicator 2 - Indirect Beneficiaries of GCF funded project/programme (Units: number of individuals and percentage %)

Please provide the "annual value" of the number of indirect beneficiaries who benefitted from GCF funding only during the reported calendar year. The 'Cumulative Value' refers to the total ex-post number of indirect beneficiaries on a cumulative basis. Please note that all values should be based on total funding (GCF funding and co-financing).

Baseline	Baseline (% of female)
0	0 %
Annual Value (Reporting Year)	Annual Value (% of female)
Cumulative Value	Cumulative Value (% of female)
2 402	3 %
Mid-term Target	Mid-term Target (% of female)
68 114	49 %
Final Target	Final Target (% of female)
272 459	49 %
Remarks (including changes, if any)	

Adaptation Core Indicator 3 - Number of total beneficiaries relative to total population (Units: percentage %)

Please provide the "annual value" of the number of total beneficiaries who benefitted from GCF funding relative to the total population only during the reported calendar year. The 'Cumulative Value' refers to the ex-post number of total beneficiaries relative to the total population on a cumulative basis. Please note that all values should be based on total funding (GCF funding and co-financing).

Share of direct beneficiaries relative to total population

Baseline	Annual Value (Reporting Year)	Cumulative Value
0 %		23 %
Mid-term Target	Final Target	
31 %	72 %	

Share of female direct beneficiaries relative to total population

Baseline (female)	Annual Value (Reporting Year)	Cumulative Value (female)
0 %		1 %
Mid-term Target (female)	Final Target (female)	
25 %	25 %	

Share of indirect beneficiaries relative to total population

Baseline	Annual Value (Reporting Year)	Cumulative Value
0 %		0.2 %
Mid-term Target	Final Target	
25 %	100 %	

Share of female indirect beneficiaries relative to total population

Baseline (female)	Annual Value (Reporting Year)	Cumulative Value (female)
0 %		0.1 %
Mid-term Target (female)	Final Target (female)	
25 %	100 %	

Remarks (including changes, if any)

2.4.2 Impact Indicators

Select applicable impact indicators

- M1.1 Tonnes of carbon dioxide equivalent (tCO₂eq) reduced or avoided as a result of increased low-emission energy access and power generation
- M2.1 Tonnes of carbon dioxide equivalent (tCO₂eq) reduced or avoided as a result of increased access to low-emission transport
- M3.1 Tonnes of carbon dioxide equivalent (tCO₂eq) reduced or avoided as a result of buildings, cities, industries and appliances
- M4.1 Tonnes of carbon dioxide equivalent (tCO₂eq) reduced or avoided as a result of sustainable management of forests and conservation and enhancement of forest carbon stocks
- A1.1 Change in expected losses of lives and economic assets due to the impact of extreme climate-related disasters in the geographic area of the GCF intervention
- A1.2 Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options (including fisheries, agriculture, tourism, etc.)
- A1.3 Number of Fund funded projects/programmes that supports effective adaptation to fish stock migration and depletion due to climate change
- A2.1 Number of males and females benefiting from introduced health measures to respond to climate-sensitive diseases
- A2.2 Number of food secure households (in areas/periods at risk of climate change impacts)
- A2.3 Number of males and females with year round access to reliable and safe water supply despite climate shocks and stresses
- A3.1 Number and value of physical assets made more resilient to climate variability and change, considering human benefits (reported where applicable)
- A4.1 Coverage/scale of ecosystems protected and strengthened in response to climate variability and change
- A4.2 Value of ecosystem services generated or protected in response to climate change

A1.1 Change in expected losses of lives and economic assets due to the impact of extreme climate-related disasters in the geographic area of the GCF intervention (Units: multiple, as applicable)

Please provide the "annual value" achieved only during the reported calendar year and the ex-post 'Current Value' on a cumulative basis.

Select Units (as many as possible)

- Persons
- Economic Assets (in money value)
- Percentage % (reduction in losses of lives and economic assets)
- Other

Unit - Persons

Baseline	Annual Value (Reporting Year)	Cumulative Value
11		0
Mid-term Target	Final Target	
0	0	

Unit - Economic Assets

Currency

USD

Baseline	Annual Value (Reporting Year)	Cumulative Value
144 200 000		0
Mid-term Target	Final Target	
0		

Remarks (including changes, if any)

A2.2 Number of food secure households (in areas/periods at risk of climate change impacts) (Unit: number of individuals/households, % percentage, select as many as applicable)

Please provide the "annual value" achieved only during the reported calendar year and the ex-post 'Cumulative Value' on a cumulative basis.

Select applicable units

- Persons
- Households

Unit - Households

Please provide the "annual value" achieved only during the reported calendar year and the ex-post 'Cumulative Value' on a cumulative basis.

Baseline	Baseline (% of female-headed households)
0	%
Annual Value (Reporting Year)	Annual Value (% of female-headed households)
	%
Cumulative Value	Cumulative Value (% of female-headed households)
0	0 %
Mid-term Target	Mid-term Target (% of female-headed households)
888	%
Final Target	Final Target (% of female-headed households)
1 777	%

Remarks (including changes, if any)

2.4.3 Project/Programme-level Outcome & Output Indicators

Please provide the "annual value" achieved only during the reported calendar year and the ex-post 'Cumulative Value' on a cumulative basis. If you have multiple outputs to be reported against one outcome, you need to write down the same outcome name for every output. Likewise, if you have multiple indicators to be reported against one output, you need to write down the same output name and corresponding outcome name for every indicator.

Use 'Add row' button to add multiple outcomes, outputs and/or indicators.

Results Areas		Outcome Name	
<input type="text" value="[Adaptation] Health, Food, and Water Security"/>		<input type="text" value="A5.1 Institutional systems that improve incentives for climate resilience and their effective implementation"/>	
Output Name (under the afore-mentioned outcome)			
<input type="text"/>			
Please write 'Not Applicable' if the below-mentioned indicator is to be reported directly at the outcome level.			
Indicator Name			
<input type="text"/>			
Unit			
<input type="text"/>			
Baseline	Annual Value (Reporting Year)	Cumulative Value	
<input type="text"/>	<input type="text"/>	<input type="text"/>	
Mid-term Target	Final Target		
<input type="text"/>	<input type="text"/>		
Remarks (including changes, if any)			
<input type="text"/>			

If applicable, please submit a supporting document describing the calculation methodology for the current values provided.

2.5 Report on changes during implementation (include actual and expected changes)

Towards the end of the reporting period, there has been a change in the task management from within the Implementing Entity. This has allowed broader engagement of technical/advisory teams within the Accredited Entity; and a notable movement of activities under the Executing Entities, addressing some of the key bottlenecks for the project.

Describe changes to the project during the reporting period. In particular, the report should cover elements such as change of beneficial ownership structure, management changes of the Accredited Entity, policies and other elements relevant for the project, and any other material change that could influence the overall outcome of the project.

2.6 Implementation challenges and lessons learned

Challenge encountered	
<input type="text" value="COVID-19 restrictions within the region leading to an inability to be able to travel to Vanuatu to provide the technical support required from the delivery partners, Implementing Entity and external consultants. The Pacific is now undergoing cases of community transmission in countries, including Vanuatu, and this could lead to further restrictions caused by internal lockdowns. Internal lockdowns will impact on the ability of the in-country team to travel to sites and undertake priority activities."/>	
Describe the challenge faced during the last twelve (12) months of implementation and critical risks that may result in a change to the scope and/or timing of the project; please provide a description and how they have impacted the implementation period and could impact other activities and final targets. N.B. Choose the most relevant type if the challenge is related to multiple types.	
Challenge type	Impact level on the project implementation
<input type="text" value="Operational"/>	<input type="text" value="High"/>
NB. AML/CFT (Anti-Money Laundering/Combating the Financing of Terrorism), ESS (Environmental and social safeguards), SEAH (Sexual Exploitation, Abuse and Harassment)	

Measures adopted

1. For the ongoing restrictions of traveling to Vanuatu, numerous measures have been implemented e.g. virtual meetings and trainings, external assistance supported by on-ground personnel, on-line training etc.
2. To mitigate against internal lockdowns, VMGD have an initial plan and this will be updated as appropriate.

Please check if the above-mentioned challenge(s) has been resolved during the reporting period

The challenge(s) has been resolved during the reporting period.

Lesson learned and other remarks

Flexibility is key both in managing the work programme and the budget. Additionally, it can assist in having external expertise supported by in-country personnel, however, this is also reliant upon the capacity in-country to be able to provide this support.

Please check if this challenge is caused by COVID-19 pandemic.

- Yes
 No

Please choose the severity of overall impact.

On track with no or minor impact

Description of levels of severity:

1. On-track with no or minor impact: No or minor impact on project implementation and corresponding annual activities.
2. Facing delays: Implementation progress faced delays in the timeline but did not require any substantial changes in the implementation plan.
3. A minor change(s) required: Changes that are not classified as Major changes but requires intervention from GCF.
4. A major change(s) required: As per paragraph 16 of the Policy on Restructuring and Cancellation - Board Decision B.22/14 paragraph (a). Please find the link to the policy document below.

[GCF Policy on Restructuring and Cancellation](#)

Select a type of the COVID-19 challenges encountered.

Field Activities

Sample challenges for Field Activities:

- Delays in travels, planned training, workshops, conferences, events, and awareness-raising events
- Limited access to project sites especially outer islands
- Postponed field missions for collecting/validating information, and conducting consultations with local stakeholders
- Measures required to ensure the security and safety of workers
- Delays in pilot projects, feasibility/baseline studies

Please describe if any support is required from the GCF to address the COVID-19 impact on your project/programme.**Challenge encountered**

Capacity constraints in executing entities particularly in relation to project management and financial management.

Describe the challenge faced during the last twelve (12) months of implementation and critical risks that may result in a change to the scope and/or timing of the project; please provide a description and how they have impacted the implementation period and could impact other activities and final targets. N.B. Choose the most relevant type if the challenge is related to multiple types.

Challenge type

Operational

Impact level on the project implementation

Moderate

NB. AML/CFT (Anti-Money Laundering/Combating the Financing of Terrorism), ESS (Environmental and social safeguards), SEAH (Sexual Exploitation, Abuse and Harassment)

Measures adopted

The IE has entered discussions with the Executing Entities in an attempt to address capacity constraints following the untimely departure of the previous project manager under the SPREP Executing Entity, and put in place additional project management arrangements on a consultancy basis. The IE is to explore options for further training of the EEs.

Please check if the above-mentioned challenge(s) has been resolved during the reporting period

The challenge(s) has been resolved during the reporting period.

Lesson learned and other remarks

There is a need to properly assess the capacity of executing entities and to ensure that project management support is being provided by suitable and experienced personnel.

Please check if this challenge is caused by COVID-19 pandemic.

- Yes
 No

Challenge encountered

Significant constraints in Implementing Entity approach to project oversight, and engagement with Executing Entities which included introduction of new and additional templates for reporting; misguided advice on addressing project conditions and deviation from core project obligations such as timely reporting; and a deteriorating relationship with national partners which impacted project delivery.

Describe the challenge faced during the last twelve (12) months of implementation and critical risks that may result in a change to the scope and/or timing of the project; please provide a description and how they have impacted the implementation period and could impact other activities and final targets. N.B. Choose the most relevant type if the challenge is related to multiple types.

Challenge type

Ethics and conflicts of interest

Impact level on the project implementation

High

NB. AML/CFT (Anti-Money Laundering/Combating the Financing of Terrorism), ESS (Environmental and social safeguards), SEAH (Sexual Exploitation, Abuse and Harassment)

Measures adopted

The Implementing Entity task manager resigned at the end of 2022, and arrangements are in place by the Accredited Entity to review the Implementing Entity function to ensure better fit for purpose.

Please check if the above-mentioned challenge(s) has been resolved during the reporting period

- The challenge(s) has been resolved during the reporting period.

Lesson learned and other remarks

1. Experienced project management personnel with appropriate experience working within the cultural/social contexts of the project region, are essential for both provision of oversight (from an IE perspective) as well as effective on-ground implementation and reporting.
2. Capacity can be limited, and additional resources and time is required to train and mentor project personnel to bring up the level of skills needed to undertake project management.

Please check if this challenge is caused by COVID-19 pandemic.

- Yes
 No

2.7 Updated implementation timetable for the Funded Activity

Please submit the implementation time table for the Funded Activity**Confirmation and Acknowledgement of Information ***

* This is a required question to submit section 2 of the Annual Performance Report (APR).

- The accredited entity hereby confirms that the information provided in section 2 is complete and ready for submission.