REGIONAL PACIFIC NDC HUB

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Enhancing Vanuatu's NDC to include quantifiable adaptation targets

04 February 2021

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Acronym List

Acronym	Definition
ADR	Annual Development Report
CAN	Climate Action Network
CCI	Chamber of Commerce and Industry
COP	Conference of the Parties
CSO	Civil Society Organisation
CSU	Corporate Services Unit
DLA	Department of Local Authorities
DoCC	Department of Climate Change
DoE	Department of Energy
DoF	Department of Fisheries
DoFT	Department of Finance and Treasury
DoWR	Department of Water Resources
DSPPAC	Department of Strategic Policy, Planning and Aid Coordination
FAO	Food and Agriculture Organisation
FRDP	Framework for Resiient Development in the Pacific
GIS	Geographic Information System
L&D	Loss and Damage
LA	Livelihood Assets
M&E	Monitoring and Evaluation
MALFFB	Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity
MLNR	Ministry of Lands and Natural Resources
MOCCA	Ministry of Climate Change Adaptation
NAB	National Advisory Board on Climate Change
NAPA	National Adptation Programme for Action
NCCDRRP	National Climate Change and Disaster Risk Reduction Policy
NDC	Nationally Determined Contribution
NDMO	National Disaster Management Office
NSDP	National Sustainable Development Plan
NVAF	National Vulnerability Assessment Framework
PA	Paris Agreement
PaCE-SD	Pacific Centre for Environment and Sustainable Development
SDG	Sustainable Development Goal
SDO	Sustainable Development Objectives
SFDRR	Sendai Framework for Disaster Risk Reduction
SME	Small and Medium Enterprises
SPREP	Secretariat of the Pacific Regional Environment Programme
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNSDG	United Nations Sustainable Development Goals
USP	University of the South Pacific
PACRES	Pacific Adaptation to Climate Change and Resilience Building
Van-KIRAP	Vanuatu Klaemet Infomesen blong Redy, Adapt mo Protekt
VBCR	Vanuatu Business Resilience Council
VCCI	Vanuatu Chamber of Commerce and Industry
VMGD	Vanuatu Meteorology and Geo-hazards Department
WIM	Warsaw International Mechanism for Loss and Damage

Acknowledgements

This project was a result of the efforts and support of a broad range of stakeholders in Vanuatu.

First, the *Enhancing Vanuatu's NDC to include quantifiable adaptation targets* project would not have been possible without the commission of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Government of Vanuatu through the Regional Pacific Nationally Determined Contributions Hub. In particular, thanks to the support of Christine Reddy and Rebecca Eldon from GIZ for their flexibility and support throughout.

Second, this project complements and supports the work of the Vanuatu Ministry of Climate Change and Natural Disasters. We would like to thank the Government of Vanuatu, specifically those from the Ministry, for facilitating this project in the most challenging of circumstances during the COVID-19 pandemic. A particular thanks to Ms Pauliane Basil who assisted greatly with the logistics of the workshop.

Third, the success of the project has been enabled through a broad range of individual stakeholders and institutions in Vanuatu. We would like to thank all those participants and other stakeholders for their time and contributions at different stages of the project. Without these generous and substantive inputs, the project outputs would have been much diminished.

Finally, acknowledgement is due to the project team from Anglo Pacific Research. This report is a result of significant inputs by Melanie Pill, Dr Patrina Dumaru, Malcolm Dalesa and Tom Sloan. Thanks also to Diana Salili for her support during the preparation and delivery of the workshops.

In what has been a challenging year globally, we hope that the inputs of these above noted individuals and institutions will positively contribute to the processes of communicating an enhanced NDC to the UNFCCC by the Government of Vanuatu.

EXECUTIVE SUMMARY

In early 2020, Anglo Pacific Research was engaged through the Regional Pacific Nationally Determined Contributions (NDC) Hub to provide technical services to the Government of Vanuatu to enhance the adaptation component of its existing NDC that was submitted to the UNFCCC in the lead up to the 2015 Paris climate conference. The purpose of the project was to strengthen the content on adaptation in the existing NDC by developing quantifiable targets for adaptation in two priority sectors identified by the Government of Vanuatu – agriculture and water. In addition, the project aimed to determine how to incorporate loss and damage (L&D) considerations into the NDC. This project provides the guidance to the Government of Vanuatu to support their submission of an enhanced NDC to the UNFCCC in 2021.

The findings presented in this report are built on a desktop assessment, scoping consultations, a participatory workshop and a validation workshop. This was complemented by other consultations with Vanuatu based stakeholders. The desktop assessment included an analysis of policies relevant to Vanuatu's national, regional and international level targets and indicators for the agriculture and water sectors. This review shows that Vanuatu's national climate change policies are comprehensive and complement other important national documents, including the National Sustainable Development Plan (NSDP) – aligned with the Sustainable Development Goals (SDGs) – and the National Vulnerability Assessment Framework (NVAF). These national level documents provide a sound basis for developing adaptation targets and indicators for the priority sectors. This include alignment with pre-existing reporting processes between the existing suite of policy documents. The participatory workshop with national stakeholders served to review the outcomes of desk assessment and to identify and prioritise targets and indicators for the water and agriculture sectors. The validation workshop reviewed, revised and validated those targets and indicators.

Adaptation goals, targets and indicators for priority sectors

The project identified a long list of process- and outcome-based indicators for priority sectors based on consultations. This included 18 indicators for the water sector and 27 indicators for the agriculture sector. These indicators were further prioritised based on assessing each indicator against five factors, including: urgency; adaptation impact potential; alignment with current frameworks, policies and processes; usability, relevance and sustainability; and achievability and data availability. These were narrowed further to a short list of six indicators for agriculture and water sectors, respectively. The recommended goal, targets and short list of priority indicators for the sectors are outlined below.

Agriculture sector

The overarching goal for the agricultural sector was identified as: **"***Agriculture is able to support household **income** and **food** needs in a changing climate*". In contributing to the achievement of this goal, two targets were identified.

- **Target Ag1:** By 2022, 80% of **agriculture SMEs and private sector operators** are able to generate sufficient income to cover essential household needs and services
- **Target Ag2:** By 2030, 100% of identified measures for **enhancing the resilience of subsistence agriculture** in a changing climate in the six provinces have been implemented.

Aligned to these targets, a short list of 6 priority indicators were identified, including:

- Changes in the number of agriculture SMEs **and private sector operators** in the most vulnerable communities in each of the six provinces
- **Natural resource** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. soil and land quality and access)
- **Infrastructure** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. outer island roads, extension services, stocks of climate

resilience seedlings and equipment)
- **Skills and training** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. climate and disaster resilient cropping training, number of farms and/or level of crop harvest per farmer in normal and stress times)
- Percentage of subsistence farmers continuing to apply **traditional knowledge** and access planting materials for subsistence purposes
- Total number of primary, secondary and tertiary schools that teach climate resilient **subsistence** agriculture.

These indicators were identified based on their importance, relevance and potential alignment with other pre-existing reporting. Specific engagement is given to how they align with various indicators already reported on as part of the NSDP. For each indicator, implementation timeframes and resourcing requirements are indicated in the main text. In terms of resourcing, an assessment focus was on whether the indicator was achievable with or without external funding.

Water sector

Based on the workshop consultations, the overarching goal for the water sector was identified as: *"The water management system is able to support water needs for all communities in a changing climate".* In contributing to the achievement of this goal, two targets were established:

- **Target Wa1:** By 2030, 60%[1] of communities in the six provinces have developed drinking Water Safety and Security Plans and are able to address water needs
- **Target Wa2:** By 2030, 6 **climate-resilient** water protection zones declared, providing sufficient urban water supply.

Aligned to these targets, a short list of 6 priority indicators were identified, including:

- **Natural resource** related measures addressing water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. protection of natural water sources, improved wastewater disposal; water quality)
- **Infrastructure (including technology and services)** related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. cyclone-proof tanks, water treatment, watsan technology for drought (scarcity)
- Number of **water-climate vulnerable rural communities** with at least 5 individuals who have been trained on climate-resilient water management
- **Natural resource** related measures to protect climate vulnerable urban water sources identified and implemented (e.g. reforestation of watershed)
- **Skills** related measures to protect climate vulnerable urban water sources identified and implemented (e.g. watershed reforestation training)
- Proportion of urban household with access to a climate-resilient natural water source in the six provinces.

As with the agriculture indicators, these were identified based on their importance, relevance and potential alignment with other pre-existing reporting. Reference to alignment with indicator reporting under NSDP, as well as timeframes and resourcing requirements are also indicated in the main text.

Loss and damage considerations

Loss and damage from climate change impacts is included in Vanuatu's National Climate Change and Disaster Risk Reduction Policy with associated actions identified. Stakeholders identified L&D as already occurring, observable and as a future threat. Stakeholders identified a broad range of L&D

[1] While consultations identified the target as 100%, this is an aspirational target. A more realistic figure has been proposed within a 50-70% range.

related issues including floods, storms, hurricanes, sea level rise, increasing temperatures, ocean acidification, salinisation, land and forest degradation, loss of biodiversity and desertification. The most relevant L&D impacts to Vanuatu in the water and agriculture sectors are related to sea level rise, salinisation and drought as slow onset events and floods, storm surges and hurricanes as sudden onset events.

It is therefore recommended that L&D forms part of Vanuatu's enhanced NDC. All proposed L&D considerations are in line with Vanuatu's Climate Change and Disaster Risk Reduction policy and support the actions outlined for L&D. There is opportunity to include the proposed L&D considerations in the priority indicators for water and agriculture, such as raising awareness of L&D or inclusion of L&D considerations in future iterations of policies, frameworks and plans. L&D considerations that can be achieved at no cost should be pursued first, such as assigning a national focal point for L&D, accessing the Warsaw International Mechanism for Loss and Damage's (WIM) resources where possible and inclusion of L&D in vulnerability assessment frameworks. For the future and the next NDC in 2025, more concrete L&D indicators should be considered that indicate specific contributions on L&D. These targets could relate to data and information, research, capacity building technology, institutional systems and L&D finance.

Future considerations

The project has identified a prioritised list of climate change adaptation indicators for agriculture and water sectors in Vanuatu, as well as progressed discussion on considerations of L&D in the Vanuatu context. An important next step will be for the Government of Vanuatu to take forward these prioritised indicators and further refine and validate them. In regards the proposed prioritised short list of indicators, this would include ensuring they align with the upcoming priorities of Vanuatu, and to review the resourcing and timing implications of them. For agriculture, it is important that the indicators are further validated with a broader range of stakeholders, noting the limitations outlined in the report. Similarly, the L&D considerations should be discussed with stakeholders interested in L&D and beyond the specific sectoral focus of agricultural and water. As part of further review of the indicators, consideration should be given to the importance of addressing different needs of vulnerable groups and adjusting actions accordingly – this includes considerations regarding gender, and engagement with people with disabilities.

All targets and indicators for adaptation and L&D that are presented in this report are country-driven and in line with existing policies and frameworks, allowing for integration of adaptation efforts in existing national processes. The processes applied in this assignment as well as the findings provide a basis to develop and expand targets and indicators for other priority areas for Vanuatu such as the environment, fisheries, oceans and tourism sectors which were identified in the National Adaptation Plan for Action process as the next most relevant sectors to pursue. If the same approach is followed as has been used for the agriculture and water sectors – including aligning to already existing polices and frameworks such as the NVAF, NCCDRR policy and the NSDP – meaningful and achievable targets and indicators can be developed that can be incorporated into existing reporting processes and data gathering exercises.

1. INTRODUCTION

1.1 Purpose

In early 2020, Anglo Pacific Research was engaged through the Regional Pacific Nationally Determined Contributions Hub to provide technical services to the Government of Vanuatu to enhance the adaptation component of its Nationally Determined Contribution (NDC). This work focused on adaptation priorities as determined in key national documents, including the National Adaptation Program of Action (NAPA) and the National Climate Change and Disaster Risk Reduction Policy (NCCDRRP), and prioritised by Government of Vanuatu stakeholders.

The purpose of the project was to strengthen the existing content on adaptation in the NDC by developing quantifiable targets for adaptation. The project outputs are intended to support the preparation of an enhanced NDC for submission in to the United Nations Framework Convention on Climate Change (UNFCCC) in 2021. This builds from the adaptation component of the NDC submitted in 2015 and subsequently ratified in 2016.

The primary objective of the project was to develop national quantifiable adaptation targets and indicators for two priority sectors identified by the Government of Vanuatu – agriculture and water. The secondary objective was to determine how to incorporate climate change loss and damage (L&D) considerations into Vanuatu's NDC. It was note within the scope of this assignment to produce the Vanuatu NDC.

1.2 The priority sectors in the context of Vanuatu

Vanuatu is a Pacific Island country consisting 83 islands of which 65 are inhabited by the population of approximately 295,000 people. The country has total area of 12 190 km^2 with the main island groups aligned with country's six provinces Malampa, Penama, Sanma, Shefa, Tafea and Torba. Around 74 percent of the population live in rural areas. In 2020, the gross domestic product (GDP) per capita was USD3,260, while Vanuatu was assessed as being in the 'medium human development' category according to the Human Development Index.

As a small island developing state, Vanuatu is amongst the most vulnerable countries to the impacts of climate change. In the context of adaptation concerns, the Government of Vanuatu have identified agriculture and water as priority sectors for their country. As briefly described below, there is a strong rationale for focusing on these sectors. However, it is also acknowledged that there are other sectors which are critically important to consider. It is intended that the process and approach outlined in this report can be reproduced for other sectors in the future.

1.2.1 Agriculture

The agricultural area – which is the sum of arable land, permanent crops and permanent meadows and pasture – In Vanuatu is estimated at 187 000 ha, approximately 15 percent of the total area of the country. In 2013, the total physical cultivated area was estimated at 145 000 ha, of which 14 percent consisted of temporary crops and 86 percent of permanent crops. Coconut plantations and agricultural crops, such as maize, roots and tubers and vegetables, are dominant on the narrow coastal plains.

As a proportion of total GDP, agriculture accounts for approximately 23 percent and accounts for more than 75 percent of exports. Subsistence agriculture is the main economic sector in the country and is critical to development and livelihood concerns.

Agriculture has long been identified as a climate change priority in Vanuatu. The Intergovernmental Panel on Climate Change (IPCC) has identified that longer droughts, increased flood risk, sea level rise and associated salinisation will all have an impact on Vanuatu's food production, supply and security as well as economic stability on a national and household level. Amplified by growing concern about inadequate levels of nutrition amongst a growing population, it is imperative to increase resilience in this sector and adapt to changing environmental circumstances.

In the development of Vanuatu's NAPA in 2003, the agriculture sector was ranked highest priority to ensure food security for the country. Given its importance to economic activity and livelihood options in Vanuatu, the identification of agriculture by Government of Vanuatu as a priority sector for the development of quantifiable indicators was appropriate.

1.2.2 Water

Accessibly to potable water is variable across the many islands of Vanuatu, with only approximately 90.0% of the population having access to improved drinking water.

In Vanuatu, both surface water and groundwater are used for domestic purposes. In urban areas the main water sources are often shallow aquifers whereas in rural areas various sources are used such as bores, wells, springs, rivers and rainwater catchments. While in many parts of the country there are substantial amounts of groundwater which can be accessed even during severe drought, in others groundwater sources are extremely limited. For example, some smaller islands such Mataso and Buninga in the Shepherd islands in Shefa province, all of Torres islands, and small islands off Malekula and Santo have limited groundwater. In these areas, populations rely on surface water access only.

Overall, the water sector in Vanuatu is vulnerable as most of its territory do not have perennial streams, because of their size and their rugged topography. River courses are short and the flows are short lived, especially in dry periods. There is no formal record of water use in Vanuatu and many water sources in Vanuatu are unprotected and affected by pollution, and in some cases contaminated by volcanic ash and gas emissions. Groundwater has traditionally been exploited by constructing hand-dug wells in low-lying or coastal areas that are subject to contamination and often contain water that is unsuitable for drinking.

Demands on existing water sources will increase as Vanuatu's population expands and, depending on the post-COVID-19 environment, tourism grows. These are particularly acute issues in the capital Port Vila on Efate island and Luganville on Santo island where aquifers are under increasing pressure from housing, agriculture and other developments. These demands will limit the future availability of potable water and water for other uses. This is exacerbated by the impacts of climate change as outlined by the IPCC.

In the development of Vanuatu's NAPA in 2003, the water sector was ranked behind agriculture as the second highest priority sector to ensure food security for the country, with a specific need identified for enhanced water management policies and programmes (including rainwater harvesting). Given its importance to the people of Vanuatu, the identification of water as a priority sector by Government of Vanuatu was also appropriate.

1.3 Approach and methodology

Our approach to engagement was built on meaningful engagement with project stakeholders to ensure that the project delivered to be relevant to the Vanuatu context and operating environment. Climate change adaptation targets and indicators serve as important barometer for adaptation action. As part of developing a framework that informs the reporting upon quantifiable adaptation targets

and indicators in Vanuatu's NDC, it is important to align with pre-existing national and regional frameworks, policies and processes. This includes aligning with national reporting towards the Sustainable Development Goals (SDGs) as well as the Sendai Framework for Disaster Risk Reduction (SFDRR) and other relevant national and regional frameworks. The targets and indicators that were developed for the water and agriculture sector were done so on the basis of being applicable and maximising transferability to other sectors. From the design phase, a number of important principles underpinned our approach to delivery. These included:

- **Alignment with current frameworks, policies and processes**. Our work sought to align with existing frameworks, policies and processes to minimise duplication.
- **Emphasising usability, relevance and sustainability**. Our work sought to deliver outputs that are relevant and useable to stakeholders.
- **Alignment with Vanuatu priority sectors and areas**. This was core to the implementation of this assignment, with water and agriculture identified by Vanuatu government stakeholders as their key priority sectors.

The project drew on multiple methods, including desk assessment, scoping engagements, a participatory stakeholder workshop and a validation workshop. These activities were delivered sequentially to allow for the iterative development and refinement of targets and indicators in the priority sectors. These methods and their contribution to the project are outline below:

- **Desk review**. This included a review of relevant policies, frameworks and plans related to climate change adaptation and sustainable development relevant to the water and agriculture sectors in Vanuatu. The aim was to ensure alignment with Vanuatu's current frameworks and established targets and indicators.
- **Initial stakeholder consultations**. This process included initial scoping engagements with stakeholders from key agencies in Vanuatu dealing with water, agriculture and/or climate change in Vanuatu. This informed the identification of participants for the workshops and established a sound understanding of the existing policy landscape.
- **Participatory stakeholder workshop**. This involved a two-day workshop with key national stakeholders to review the outcomes of desk assessment and to identify targets and priority indicators for the water and agriculture sectors. The workshop covered a broad range of issues, including: review of existing policies and reporting systems; identification of adaptation targets and indicators for priority sectors and associated available data sources; and discussion on L&D considerations. The workshop was held on 22 and 23 October at the Grand Hotel and Casino in Port Vila, Vanuatu.
- **Validation workshop**. This involved a two-day validation workshop focused on the results from the earlier stakeholder workshop. Outcomes of the first workshops were consolidated, summarised and presented to stakeholders to validate the information that was gathered. Questions and gaps as a result of the review from the workshop outcomes were addressed and resolved as far as possible with workshop participants. The workshop was held on 5 and 6 November at the VMDG Conference Room in Port Vila, Vanuatu.

The workshop activities identified a long list of potential climate change adaptation indicators identified as important to each sector. Subsequently, the consultant team narrowed the number of indicators based on an assessment against five factors:

- urgency
- adaptation impact potential,
- alignment with current frameworks, policies and processes,
- usability relevance and sustainability and
- achievability and data availability.

This exercise was followed by a distinct selection of priority indicators to be included in the enhanced

NDC. Within the scope of this project, it was not possible to validate the short list of prioritised indicators. We recommend the Government of Vanuatu review the suitability of this prioritised indicator list aligned with their own needs in the development of their NDC.

The development of L&D considerations for the NDC was informed by guidance within the Transparency Framework and in the Katowice Climate Package. Discussion in the participatory workshop regarding L&D was based around the following consideration:

- What is observed or potential L&D within your sector?
- What are the current activities to avert, minimise and address L&D? If nothing is in place or there are gaps, what needs to be in place?
- What are the institutional arrangements to facilitate action? If there are none or there are gaps, what needs to be established?
- What could L&E related targets and indicators be?
- What assistance would you need to achieve these targets?

The validation workshop built on the earlier discussions and focused:

- What would be a good thing to address/ look at/ is already addressed?
- What assistance do you need within your sector/ What would be helpful?
- What do you think is now a challenge that wasn't a challenge before?
- Based on the current trend, what will become even more challenging in the future?

Responses by stakeholders were consolidated into concrete actions that would contribute towards addressing L&D from climate change impacts in the national context of Vanuatu.

Throughout, we worked closely with staff from the NDC Hub and the Vanuatu Ministry of Climate Change and Natural Disasters who provided advice and support regarding the design and delivery of the project work.

1.4 Limitations

There were a number of challenges that emerged throughout the project. These need to be acknowledged, along with other limitations, in reading this report. This activity was significantly impacted by the emergence and subsequent response to COVID-19. Government responses had a number of material impacts, including:

- Delays in project implementation as lockdowns were implemented, with consultations unable to proceed aligned to expected timelines
- The inability for the original project team to travel to Vanuatu as part of delivering the in-person workshop activities.

These delays required the recruitment of suitably well-qualified and experienced Vanuatu-based consultants to deliver the in-country elements, including stakeholder consultations and workshops. The inclusion of Malcolm Dalesa and Diana Salili in the project team and their understanding of climate change adaptation activities in Vanuatu provided clear benefits for the project.

Additional challenges and limitations emerged in relation to the workshop. In response to the inability to travel, a novel approach to workshop implementation was employed. This included a combination of brief online English-language presentation based on the earlier desk assessment from presenters via Zoom, followed by in-person Bislama-language based facilitation at the workshop venue. While this approach enabled the conduct of the workshop, it did present challenges to the technical team in guiding participants through the planned workshop sessions and in responding to clarifications or queries from participants. Connectivity issues prevented the ability for follow up questions and limited effective two-way communication between those joining via Zoom and those in the workshop.

The workshops were limited in terms of the sectoral spread of attendees. Within both workshops, there was limited attendance from agricultural sector stakeholders (see the workshop attendee list in Annex B). To manage this issue, the project team engaged with critical agricultural stakeholders out of the workshops and integrated their inputs into the reporting.

Overall, the project was limited in its scope of focusing on only two sectors. There are other sectors – such as the environment sector which is the second pillar of the NSDP – that will be important to consider in expanding the sectoral focus for adaptation indicators in the future. As noted above, the focus on agriculture and water was identified by the Government of Vanuatu.

1.5 Report structure

This report is structured to provide a detailed outline of the key work undertaken in delivering the project. The report is separated into nine sections with two distinct parts. Sections 2-5 are an initial desk review of the existing policy landscape in the water and agriculture sector including existing policies, reporting processes and data sources. Sections 6 and 7 present the long-list of targets and indicators identified through the project consultations. Section 8 identifies a prioritised list of targets and indicators for agricultural and water sectors, including identified possible requirements for additional resourcing. Section 9 presents considerations for how L&D might be incorporated into the NDC and priority areas to pursue. Section 10 concludes and proposes a number of next steps to pursue.

2. ADAPTATION FRAMEWORKS AND POLICIES

This section provides a review of international, regional, national and sectoral frameworks and policies relevant to climate change adaptation, specifically related to agriculture and water in Vanuatu. Table 1 provides a high-level overview of the primary documents across these levels included in the review. This section establishes the context for developing adaptation targets in Vanuatu.

Table 1 – Climate change policies and frameworks reviewed for this assessment

International	Regional	National	Sectorial
• UNFCCC • Sendai Framework • Sustainable Development Goals	• Framework for Resilient Development in the Pacific	• Nationally Determined Contribution • National Adaptation Program of Action • National Climate Change and Disaster Risk Reduction Policy • National Sustainable Development Plan • Vanuatu National Vulnerability Assessment Framework	• Vanuatu Agriculture Sector Policy • Department of Agriculture and Rural Development Business Plan • Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity Corporate Plan • Vanuatu National Water Policy 2018-2030

2.1 International frameworks and policies

This section establishes the international framing for adaptation targets. This focuses on the relevant UNFCCC processes, including the Paris Agreement, the NDCs, Katowice Climate Package and Loss and Damage.

2.1.1 UNFCCC

Key messages:

- The Paris Agreement is the international framework and roadmap in responding to climate change. The Enhanced Transparency Framework (Art. 13) and Global Stocktake (Art. 14) provide guidance on the tracking and reporting on pledges made by countries through their NDCs.
- NDCs provide individual countries an opportunity to develop nationally relevant mitigation and adaptation targets and indicators.
- The Katowice Climate Package defines how the Paris Agreement will be implemented globally.
- Loss and Damage was recognised under Article 8 in the Paris Agreement, separate from adaptation and mitigation. Loss and Damage is also included in the Katowice Climate Package and will be part of the global stocktake in 2023.

Paris Agreement

The Republic of Vanuatu is a signatory to the Paris Agreement. Established in 2015 at the 21st Conference of the Parties, the Paris Agreement provides a roadmap in responding to climate change, keeping the global average temperature to no more than 2 degrees Celsius, by means of NDCs. These NDCs include both mitigation and adaptation. Within the Paris Agreement, the following articles are particularly important in the development of climate change adaptation targets and indicators:

- Article 4 asks for the development of NDCs

- Article 7 recognises the importance of significant adaptation action as essential given that certain climate change impacts cannot be avoided due to locked in carbon emissions
- Article 13 establishes the Transparency Framework that provides clarity and tracking of progress towards countries' NDCs
- Article 14 establishes the Global Stocktake which takes stock of the implementation of the Paris Agreement and will take place for the first time in 2023 and every five years thereafter.

The Paris Agreement does not stipulate any specific adaptation actions nor indicators.

Nationally Determined Contributions

NDCs reflect commitments made by individual countries that contribute towards achieving the long-term goals of the Paris Agreement. Commitments are nationally identified, are voluntary and include both climate change mitigation and adaptation actions. Under the Paris Agreement, signatories are required to enhance their NDCs on a five-yearly cycle with each subsequent submission showing greater ambition.

The Katowice Climate Package

The Katowice Climate Package sets out the rules to make the Paris Agreement operational. On adaptation, the implementation guidelines provide clarity on tracking efforts to enhance national capacities for adapting to climate change impacts. Through the Katowice Climate Package, for the first time, L&D can also be included, separate from adaption efforts.

Loss and Damage

In the Paris Agreement, L&D is formally recognised under Article 8. Within the Paris Agreement, no specific funding for L&D is identified and other decisions within the agreement exclude any claim to liability and compensation (1/CP.21). The Warsaw International Mechanism of Loss and Damage (WIM) was established at COP19 to enhance knowledge and understanding of risk management approaches, strengthening dialogue, coordination and enhancing action and support for L&D.

L&D is included in the Katowice Climate Package. This allows for separate reporting of under the Enhanced Transparency Framework and the Global Stocktake. Reporting on L&D is more common among developing countries and countries vulnerable to the impacts of climate change. While 44% of the small island developing states and 34% of those in the Least Developed Countries group have reported on L&D, no industrialised countries have done so to date. Vanuatu's current NDC does not report on L&D.

2.1.2 Other relevant international frameworks

Key messages:

- The Sendai Framework for Disaster Risk Reduction 2015-2030 aims to achieve the reduction of disaster risk in order to prevent loss of life and livelihood.
- The Sendai Framework includes all types of hazards. This goes beyond climate change-induced impacts and includes geological (e.g. earthquakes), technical (e.g. oil spills) and biological (e.g. pandemics) disasters.
- The main objectives of the Sustainable Development Goal are to eradicate poverty and hunger, creating equal opportunities, protecting the planet and maintaining peace on earth. They include 17 goals, 169 targets and 230 indicators to help measure progress.

Sendai Framework for Disaster Risk Reduction 2015-2030

The Sendai Framework for Disaster Risk Reduction was adopted at the Third UN World Conference on Disaster Risk Reduction in 2015. It outlines seven targets and four priorities for action to prevent new,

and reduce existing, disaster risks. The priorities include:

- Understanding disaster risk
- Strengthening disaster risk governance to manage disaster risk
- Investing in disaster reduction for resilience
- Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction.

The Framework aims to achieve the substantial reduction of disaster risk and losses in regards to lives, livelihoods and health by 2030. Its remit includes concern for economic, physical, social, cultural and environmental assets among persons, businesses, communities and countries. The Sendai Framework goes beyond climate change-induced impacts and includes geological (e.g. earthquakes) and technical (e.g. oil spills) disasters. Disaster risk reduction and adaptation actions are closely linked.

Sustainable Development Goals 2015-2030

The Sustainable Development Goals (SDG) are a set of goals adopted by all UN Member States in 2015 as part of the 2030 Agenda for Sustainable Development. They outline 17 goals, 169 targets and 230 indicators towards eradicating poverty and hunger, creating equal opportunities, protecting the planet and maintaining peace on earth. Goal 13 – Climate Change – is directly related to the Paris Agreement and the NDCs.

2.2 Pacific regional frameworks and policies

This section identifies the Pacific regional frameworks and policies that are relevant to climate change adaptation and reporting. It specifically focuses on the Framework for Resilient Development in the Pacific and opportunities for alignment.

2.2.1 The Framework for Resilient Development in the Pacific

Key messages:

- The Framework for Resilient Development in the Pacific (FRDP) aims to integrate climate change and disaster risk management actions within a single Pacific-oriented framework. This seeks to build alignment between the currently disparate reporting requirements related to the NDCs, Sendai Framework and SDGs.
- While the FRDP M&E Strategy could assist with coherence across different reporting requirements, for the purpose of this activity in developing quantifiable climate change adaptation indicators, the primacy is ensuring any targets and indicators align with the relevant UNFCCC reporting.

The Framework for Resilient Development in the Pacific (FRDP) is a voluntary guidance document for the region that integrates climate change and disaster risk management actions in one integrated framework. The FRDP provides high-level priority actions for stakeholders to implement projects that increase resilience and adaptive capacity. The FRDP pursues three interrelated goals:

- Strengthened integrated adaptation and risk reduction to enhance resilience to climate change and disasters
- Low-carbon development
- Strengthened disaster preparedness, response and recovery.

The purpose of the FRDP is to help coordinate and integrate priority interventions and support their implementation at regional, national and local to increase resilience. It is intended to be a platform for partnership, collaboration and sharing of lessons learned, as well as to help enable regional and national progress of integrated actions. It is intended to be relevant to – and provide guidance for – all stakeholders coming from different industries and all levels of governance.

While the FRDP does not outline or stipulate adaptation targets nor does the framework have any specified reporting requirements towards a regional authority, the Pacific Resilience Partnership Taskforce is responsible for coordinating and guiding the implementation of the FRDP. The FRDP has an M&E Strategy that seeks to:

- Support countries in strengthening their respective national M&E systems for resilient development (adaptation and mitigation)
- Enable more coherent reporting (aligning SDG, Paris Agreement and Sendai Framework reporting)
- Create more enduring partnerships around M&E regionally as well as nationally.

The FRDP M&E Strategy provides insights for the development of quantitative adaptation targets and indicators in the way it seeks to synchronise the M&E of sustainable and resilient development – including integrating climate change considerations.

The FRDP M&E Strategy proposes the following types of indicators that may be applied to adaptation-specific targets:

- **Process Indicators**. Indicative of resilience-building actions and interventions by institutions and governments to manage climate and disaster risks, usually via policies, plans, projects or programmes. These are the activities and actions listed in sub-national, national and/or regional policies and plans related to climate change and disasters as well as resilience related actions within sector policies and plans.
- **Outcomes Indicators**. Refers to the results of the implemented actions (policies, plans, projects or other interventions) by institutions and governments that may have changed the vulnerability of people and communities to disaster and climate change.
- **Impact Indicators**. Refers to the effects of changing vulnerabilities resulting from resilience-building actions and activities, on longer-term development goals and wellbeing of people and communities. These are the national sustainable development goals and respective indicators.

There are opportunities for countries to more systematically incorporate gender and social inclusivity considerations into the development of adaptation targets and indicators and respective M&E processes. This may be done by ensuring that baselines and indicators, as well as methods of data gathering, synthesis and reporting, identify and address gender inequalities, including the impacts of climate change, disasters and resilient development investment actions on women and men.

It is important to note that the opportunities to align with the FRDP M&E Strategy would be highly beneficial for promoting coherence across different reporting requirements. However, for the purpose of this project – developing quantifiable indicators for climate change adaptation in agriculture and water sectors in Vanuatu – the primacy is ensuring any targets and indicators align with the relevant UNFCCC reporting.

2.3 National adaptation frameworks and policies

This section is to identifies existing policies and processes relevant to climate change adaptation in Vanuatu.

Key messages:

- Vanuatu's NDC does not include adaptation targets nor specific adaptation actions.
- Vanuatu has prepared a National Adaptation Programme for Action (NAPA). This communicates priority areas for adaptation action and initiate priority projects in certain sectors. The agriculture and water sector were identified as the most vulnerable sectors to climate change stressors.
- The National Climate Change and Disaster Risk Reduction Policy (NCCDRRP) is a general policy document relating to action for disaster risk reduction.
- The National Sustainable Development Plan is a sophisticated document, closely aligned with the SDGs. It contains promising indicators and outlines co-benefits of actions undertaken on a national level.
- The National Vulnerability Assessment Framework is a combination of indicators taken from the NCCDRRP and the Sustainable Development Objectives in the NSDP to assess the vulnerability of a country (i.e. Vanuatu).

2.3.1 Vanuatu's Nationally Determined Contribution

Vanuatu developed its NDC as part of the pledges under the Paris Agreement. These were submitted to the UNFCCC in September 2016. Vanuatu's adaptation component of the NDC does not include adaptation targets but rather reiterates the importance of adaptation action, referring to national documents such as the NAPA and the NCCDRRP. Vanuatu's current NDC does not include L&D.

The NDC outlines that monitoring and reporting on adaptation activities is the responsibility of the M&E unit of the Prime Minister's office. This is in line with the practice of capturing projects under the oversight of the Vanuatu National Advisory Board on Climate Change (NAB).

2.3.2 National Adaptation Program of Action

The objective of the NAPA for Vanuatu was to develop a country-wide program of immediate and urgent project-based adaptation activities in priority sectors. When selecting and evaluating NAPA adaptation options during the NAPA process, the agriculture and water sector were ranked as high priorities on the list of adaptation actions to undertake:

- Agriculture & food security (preservation/processing/marketing, modern & traditional practices, bartering)
- More resilient crop species including traditional varieties
- Land use planning and management (modern & traditional agricultural practices, early warning including traditional systems)
- Water management policies/programmes (including rainwater harvesting).

NAPA projects were planed commenced activities in 2004 with conclusion in 2007.

2.3.3 National Climate Change and Disaster Risk Reduction Policy

The overall vision of the NCCDRRP is that "Vanuatu is a resilient community, environment and economy". The NCCDRRP does not have adaptation and/or resilient development specific targets or indicators. It comprises a range of resilience building strategies and actions with limited reference to sector-specific climate and disaster risk management interventions. The policy does, however, highlight the projected impacts of climate change on agriculture and suggests preparedness activities for water. There are six strategic priorities identified in the NCCDRRP, including: governance, finance, knowledge and information, climate change adaptation and disaster risk reduction, low carbon development, response and recovery. The NCCDRRP contains a total of 234 actions.

The first Strategic Priority of the NCCDRRP acknowledges that:

> "Effective monitoring and evaluation (M&E) systems are crucial to good governance. Vanuatu must progress effective, nationally aligned and relevant monitoring, evaluation and learning processes for the wide range of climate change and disaster risk reduction projects and initiatives currently being implemented through various government agencies, development partners and [Civil Society Organisations (CSOs)]."

The eighth Strategic Priority of the NCCDRP sets out the mandated under which this project operates:

> "NAB will develop an M&E framework for this policy, aligning with the requirements of the Prime Minister's Office and the proposed NSDP. The M&E system for the policy will measure and monitor changes over time, track the effectiveness of climate change and disaster risk reduction efforts, and guide future planning efforts. The intention of this policy is to move away from stand-alone, project-based M&E systems and move towards a single, integrated national climate change and disaster risk and resilience M&E framework."

Further, the NCCDRRP directs the integration of M&E into project and program design across government agencies and stakeholder groups. This includes outlining the following guidance:

- Government, CSOs, development partners and the private sector strengthening and enhancing M&E of climate change and disaster risk reduction activities at national, provincial and area council levels
- Collaboratively (via the government, led by the Department of Strategic Policy Planning and Aid Coordination) developing an M&E framework to ensure accountability and provide guidance and consistency around climate change and disaster resilience
- Undertaking training on climate change and disaster monitoring and evaluation with relevant officers within the government and other agencies
- Utilising the results of M&E activities to improve planning and implementation of further initiatives.

The development of adaptation targets and indicators for Vanuatu's water and agricultural sectors may be considered as an initial contribution to developing such an M&E framework for climate change and disaster risk reduction. To fulfil its purpose in accordance with the NCCDRRP, its utility will need to have relevance across sectors, actors and reporting systems within the national sustainable development M&E processes.

In regards to L&D, the NCCDRRP includes a number of relevant actions summarised as follows:

- Operationalise and implement actions under the Warsaw International Mechanism for Loss and Damage
- Developing a L&D implementation framework, including risk sharing, insurance and compensation approaches at replacement value
- Conducting assessments on potential and actual L&D across the country linked with ongoing vulnerability assessment processes
- Determining priority Vanuatu sectoral issues and quantifying losses (e.g. food security, culture, ecosystem services and integrity)
- Mainstreaming L&D into relocation policies and laws
- Providing clarity on enforcement of and the mandate for climate proofing development among government line agencies
- Ensuring that the design and construction of public and other major infrastructure and development projects consider current and projected risks in order to minimise loss and damage.

2.3.4 National Sustainable Development Plan

Vanuatu's National Sustainable Development Plan 2016 to 2030 is aligned with the SDGs. The three foundational Pillars of the NSDP are: improve the wellbeing of people (society); protect and enhance place (environment); and maximise opportunities for shared prosperity (economy). The three pillars of the NSDP branches to 15 goals and 98 objectives, from which 213 indicators have been determined via the NSDP M&E Framework. Goal 3 of the Environment Pillar is "A strong and resilient nation in the face of climate change and disaster risks posed by natural and man-made hazards". All NSDP indicators are linked to a respective SDG indicator.

The Department of Strategic Policy, Planning and Aid Coordination (DSPPAC) in coordination with the Vanuatu National Statistics Office (VNSO) and other key government agencies are responsible for monitoring and evaluation of the NSDP. Within the NSDP there are a number of established indicators relevant to for adaptation action in the agriculture and water sector. These are outlined in Table 2.

Table 2 – NSDP Indicators that address climate, disaster, agriculture and water sectors

Climate and Disasters	Agriculture	Water	All
ENV 3.1.1 Proportion of government ministries with policies, budgets, and legislation for CC & DRM **ENV 3.1.3** Alignment of sector stakeholders' programs and CC & DRM policies and legislation **ENV 3.2.1** Establishment of multi-hazard warning systems with maintenance plans in place **ENV 3.3.1** Number of support plans available to communities for coordination, planning, preparedness, response and recovery **ENV 3.3.2** Percentage of climate change and disaster affected communities with durable solutions **ENV 3.3.3** Number of multi-hazard and risk maps to improve Post-Disaster Needs Assessment	**SOC 1.7.2** Proportion of population that use traditional lands for agriculture, marine, forestry and livestock for consumption or customary purposes consumption **ENV 1.1.1** Proportion of households engaged in production of food for own consumption **ENV 1.1.2** Up to date data on primary production (agriculture, livestock, forestry, fisheries, biosecurity) available for analysis and informed decision- making and reporting **ENV 1.1.3** Average incidence of food poverty at the household level **ENV 1.3.2.** Domestic food price level **ENVS 1.5.2** Crop diversity index with a focus on fruit and vegetables **ENVS 1.5.3** Proportion of farmers involved in integrated farming practices	**ECO 2.2.1** Proportion of population with reliable access to safe drinking water	**SOC 4.1.1** Proportion of government departments with gender responsive policies, legislation and programs **SOC 4.1.2** Number of decisions in which women participate **SOC 4.1.3** Indicators of women's empowerment

2.3.5 Vanuatu National Vulnerability Assessment Framework

Vanuatu has adopted its own National Vulnerability Assessment Framework (NVAF). The NVAF was developed to provide a common framework that could be applied across sectors and governance levels (national and sub-national) for:

- Identifying people and places that are particularly vulnerable to climate change and the nature of their vulnerability
- Institutionalising a gender-sensitive and socially inclusive approach to resilient development
- Adaptively managing climate and disaster resilient interventions in accordance with evolving national sustainable development priorities.

The NVAF responds to various CCDRRP strategic priorities. These include:

- **Strategic Priority 7.3**. Strengthened knowledge and information management for resilience decision-making planning, development and operations and to strategic priority
- **Strategic Priority 7.4**. Reducing climate and disaster vulnerability across sectors as well as nationally and sub-nationally.

The NVAF also supports the action on L&D from climate change impacts.

The NVAF is framed to assess how climate, disasters and development affects the livelihood assets of people and communities and the subsequent impacts of these changes on their abilities to meet their human security needs. It does this by assessing five livelihood assets relative to their capacity to support seven specific human security or sustainable development objectives. The NVAF defined livelihood assets (LAs) are: natural resources, infrastructure and services, financial resources, life skills and institutions and governance. The seven sustainable development objectives (SDOs) were derived from the NSDP and include: healthy ecosystems, healthy communities, security of place, water security, food security, income security and energy security. The framework allows for an assessment of a country's vulnerability in one sector and to prioritise or justify certain decisions (see Table 3).

Table 3 – NVAF Components and Alignment with 3 Goals of the NSDP 2030 Government of Vanuatu. (2018). *National Vulnerability Assessment Framework*, Department of Climate Change, Port Vila, Vanuatu, p. 19.

Livelihood Assets (LAs)	Sustainable Development Objectives (SDOs)						
	Security of Place (P)	**Healthy Community (H)**	**Healthy Ecosystem (E)**	**Water Security (W)**	**Food Security (F)**	**Income Security (I)**	**Energy security (N)**
VAF aligned NSDP goals	**Soc1, Soc4, Soc5, Soc6**	**Soc2, Soc3**	**Env4, Env5**	**Env4.2, Eco2.2**	**Env1**	**Env2, Eco1, Eco2, Eco3, Eco4**	**Env2.3, Eco2.1**
Institutions and Governance (g)	**Pg:** Institutions and governance for security of place	**Hg:** Institutions and governance for community health	**Eg:** Institutions and governance for ecosystem health	**Wg:** Institutions and governance for water security	**Fg:** Institutions and governance for food security	**Ig:** Institutions and governance for income security	**Ng:** Institutions and governance for energy security
Natural Resources (n)	**Pn:** Natural resources for security of place	**Hn:** Natural resources for community health	**En:** Natural resources and ecosystem health	**Wn:** Natural resources for water security	**Fn:** Natural resources for food security	**In:** Natural resources for income security	**Nn:** Natural resources for energy security
Infrastructure and Services (i)	**Pi:** Infrastructure & services for security of place	**Hi:** Infrastructure & services for community health	**Ei:** Infrastructure & services for ecosystem health	**Wi:** Infrastructure & services for water security	**Fi:** Infrastructure & services for food security	**Ii:** Infrastructure & services for income security	**Ni:** Infrastructure & services for energy security
Human Resources (h)	**Ph:** Knowledge & skills for security of place	**Hh:** Knowledge & skills for community health	**Eh:** Knowledge & skills for ecosystem health	**Wh:** Knowledge & skills for water security	**Fh:** Knowledge & skills for food security	**Ih:** Knowledge & skills for income security	**Nh:** Knowledge & skills for energy security
Finance (f)	**Pf:** Finance for security of place	**Hf:** Finance for community health	**Ef:** Finance for ecosystem health	**Wf:** Finance for water security	**Ff:** Finance for food security	**If:** Finance for income security	**Nf:** Finance for energy security

An advantage of the NVAF framing is that it provides the means of conceptualising sector-specific adaptation targets and indicators that enable reporting towards the NDCs and the Sendai Framework. Following this approach allows tracking through the NSDP M&E Framework. However, given that the NVAF has yet to be applied nationally, it only serves as a guidance to form agriculture and water adaptation targets and indicators that can be linked to national and global sustainability M&E systems.

2.4 Agricultural Sector Policies and Plans

This section provides an overview of the existing policies in Vanuatu's agriculture sector.

Key messages:

- Vanuatu's Agriculture Sector Policy comprises 13 thematic areas with 39 policy directives and a total of 145 strategies.
- The policy is closely aligned with the fulfilment of the SDGs.
- The policy does not provide indicators due to severe data limitations in the agriculture sector.

2.4.1 Vanuatu Agriculture Sector Policy

As the agricultural sector in Vanuatu plays a major role in food security and development, the government has developed a policy specifically for the agricultural sector. The policy explicitly acknowledges the linkage to the SDGs on poverty eradication (SDG 1), food security (SDG 2), gender equality and empowerment (SDG 5), sustainable economic growth (SDG 8), climate change (SDG 13), life on land (SDG 15) and partnerships and development (SDG 17).

The policy consists of 13 thematic areas within which there are 39 policy directives and 145 strategies. Thematic area 12 outlines directives for climate variability, climate change and disaster risk reductions. The policy does not outline specific indicators and strongly recommends the development of such indicators in its M&E section as these are largely missing in the agriculture sector. This shows how important the development of targets and indicators for the agriculture sector is, however, at the same time also identifies challenges and gaps in data availability. It is therefore important that the developed targets and indicators are relevant to Vanuatu's Agriculture Sector Policy.

2.4.2 Department of Agriculture and Rural Development – Business Plan

The Business Plan for the Department of Agriculture and Rural Development is aligned with the priorities of the NSDP, the Overarching Productive Sector Policy (OPSP) and obligations under the Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity (MALFFB) corporate plan. The Business Plan identifies six priority areas:

- Increased production of commodity crops
- Increased Food Security through sustainable production of crops that provide household nutrition security, address traditional needs, and reduce NCDs
- Improved quality and safety of agricultural products
- Natural resource management and resilience to climate change and natural disasters
- Enhanced capacity of private productive sector stakeholders with a particular focus on women and youth
- Effective and efficient policy and administration and enhanced service provision.

Of particular importance for the development of adaptation targets and indicators in this assignment is key priority area three.

2.4.3 Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity – Corporate Plan (2019-2021)

The Corporate Plan of the MALFFB seeks to align with Vanuatu's NSDP. The three policy objectives are identified as the society pillar, the economy pillar and the environment pillar. The plan outlines actions and indicators under each pillar which are to be achieved within the plan's strategic framework period from 2019-2021. Most actions are verified through reporting in the Ministry's annual report.

2.5 Water sector

This section provides an overview of the existing policies in Vanuatu's water sector.

Key messages:

- The National Water Policy 2018-2030 outlines key priority areas to ensure access to a safe and sustainable water source. Concrete actions are suggested for each key priority area.

2.5.1 Vanuatu National Water Policy 2017-2030

The National Water Policy seeks to deliver the policy objectives established by the NSDP and the SDG targets related to water. There are key priority areas identified to ensure safe, sufficient, accessible, affordable and reliable access to water in a manner that is sustainable. These include:

- Water safety and security
- Water supply markets
- Water services compliance
- Formalise water providers
- Rights of the pipes
- Provincial council authority
- Secure water future
- Capacity to reform

Each priority area has a dedicated section in which the challenge is described. A set of concrete actions is then recommended to address the policy issue.

3. EXISTING DATA AND PROCESSED FOR REPORTING

This section identifies the existing data and other reporting processes that operate in Vanuatu and are relevant to climate change adaptation. This includes both national reporting processes, as well as those specific to water and agricultural sectors.

Key messages:

- Reporting on the SDGs is voluntary and, if possible, information from existing reporting mechanisms should be used
- Vanuatu tracks their progress towards the SDG through the NSDP M&E Framework and was part of the voluntary national reviews in 2019
- Data on progress made towards fulfilling the Sendai Framework for Disaster Risk Reduction is captured through the Sendai Framework Monitor
- NDCs are to be reported in a 5-yearly cycle, with 2015 as the starting year, however, there is flexibility in reporting timelines in regards to the adaptation component of the NDC
- Vanuatu's NCCDRRP reporting aligns with the NSDP. The NAB oversees reporting on the policy at its regular meetings and prepare a publicly available annual report
- An Annual Development Report provides an annual update on the progress made towards fulfilling the targets outlined in the NSDP
- The Ministry of Agriculture Livestock, Forestry, Fisheries and Biosecurity seems to report the achievements of its corporate plan mainly in its annual report
- In its actions Vanuatu's National Water Strategy recommend monitoring and evaluation and the development of annual water sector reports. No overall reporting mechanisms become apparent through this policy.

3.1 National reporting processes

3.3.1 Nationally Determined Contributions

The NDCs are to be reported every five years to the Conference of the Parties with starting with the base year of 2015 when the first pledges were made under the Paris Agreement. Countries should submit and update periodically adaptation communication that can be part of other communication or documents such as the NDCs, adaptation plans or other national communication processes. The relevant Articles in the Paris Agreement for reporting adaptation actions are Articles 4.9-12 on NDCs and Articles 7.10-12 on adaptation.

3.3.2 Sustainable Development Goals

On a global level, the reporting of the SDGs is voluntary. Whenever possible data and information from existing reporting mechanisms should be used to report against the implementation of the SDGs. The 2030 Agenda for Sustainable Development encourages member states to "conduct regular and inclusive reviews of progress at the national and sub-national levels, which are country-led and country-driven" (paragraph 79). Following this recommendation, Vanuatu tracks their progress towards the fulfilment of the SDGs through the NSDP M&E Framework and was part of the voluntary national reviews in 2019. Documents and reports submitted by countries are placed on the SDG platform to collect information from countries that are Participating in the High-level Political Forum for Sustainable Development.

3.3.3 Sendai Framework of Disaster Risk Reduction

The United Nations Office for Disaster Risk Reduction publishes a report on countries' progress made towards implementing initiatives to address disaster risk and fulfilling the targets outlined in the Sendai Framework. Data is collected through the Sendai Framework Monitor where nominated focal points in respective countries can enter data and information relating to disaster risk actions taken

towards Sendai Targets. This is in addition to quantitative data on losses and damages caused by hazards. The United Nations Office for Disaster Risk Reduction have published the first report for 2018 (and part of 2017), 18 months after the system was made operational. A set of Technical Guidance Notes for reporting on the Sendai Framework and into the monitoring system is also available.

3.3.4 National Adaptation Program for Action

No reporting mechanism is known for this process other than those outlined in the Paris Agreement.

3.3.5 Vanuatu Climate Change and Disaster Risk Reduction Policy 2016-2030

An M&E Framework for the policy is to be developed that aligns with the NSDP. It is intended that the policy's reporting is streamlined and integrated into a single, integrated national climate change and disaster risk and resilience M&E framework. The NAB will oversee reporting on the policy at its regular meetings and prepare a publicly available annual report on the progress made towards the implementation of this policy.

3.3.6 National Sustainable Development Plan

An ADR is produced annually by the Office of M&E in the Department of Strategic Planning Policy and Aid Coordination (DSPPAC) and provides an annual update on the progress made towards fulfilling the targets outlined in the NSDP. With a harmonisation of indicators and targets for the NDCs and the NSDP, reporting and capturing of progress to the Conference of the Parties could happen through this already existing process.

3.2 Agriculture sector data and reporting process

The Ministry of Agriculture Livestock, Forestry, Fisheries and Biosecurity captures the achievements of its corporate plan mainly in its annual report.

3.3 Water sector data and reporting process

Vanuatu's National Water Strategy does not outline overall reporting requirements. However, certain actions recommend monitoring and evaluation and the development of annual water sector reports (see Sections 1.2 and 8.1).

4. PRE-EXISTING ADAPTATION TARGETS AND INDICATORS

A key principle for the implementation of this project was '**alignment with current frameworks, policies and processes.'** To operationalise this, we sought to use targets identified through its existing policies as the basis for the development of targets and indicators for Vanuatu's NDC. The following section outlines the framing of sectoral targets and indicators used to inform the workshop activities. This process informed the development of the targets and indicators presented in Sections 6 and 7.

4.1 Targets

For the purpose of this project, we assumed that the sector adaptation targets and indicators should be designed to harmonise with the current M&E framing to not increase the burden of reporting, data collection or duplication of work. In this way, they should reflect the framings in the NSDP, CCDRRP and NVAF. The initial targets for Vanuatu's NDC that were developed for workshop activities were:

- Adaptation target 1 – Water Security
- Adaptation target 2 – Food Security/Agriculture-based
- Adaptation target 3 – Income Security/Agriculture-based

These targets were directly taken out of the NVAF and identified as they have co-benefits in fulfilling goals in other policies that Vanuatu has committed to. Adaptation target 2 and 3 have been suggested in combination for the agricultural sector to be meaningful and integrate social, economic and environmental systems. Actors will have a direct relationship to food and income security indicators whereas a simple reference to agriculture may not.

Table 4 lists a number of relevant targets outlined in the NVAF. It served as starting point for discussion in the workshop on possible targets for agriculture and water.

Table 4 – Components relevant to agriculture and water, adopted from the NVAF

Livelihood Assets (LAs)	Sustainable Development Objectives (SDOs)		
	Water security (w)	Food security (f)	Income security (I)
VAF aligned NSDP goals	Env4.2, Eco2.2	Env1	Env2, Eco1, Eco2, Eco3,Eco4
Institutions and governance (g)	**Wg:** Institutions and governance for water security	**Fg:** Institutions and governance for food security	**Ig:** Institutions and governance for income security
Natural Resources (n)	**Wn:** Natural resources for water security	**Fn:** Natural resources for food security	**In:** Natural resources for income security
Infrastructure and services (i)	**Wi:** Infrastructure & services for water security	**Fi:** Infrastructure & services for food security	**Ii:** Infrastructure & services for income security
Human resources (h)	**Wh:** Knowledge & skills for water security	**Fh:** Knowledge & skills for food security	**Ih:** Knowledge & skills for income security
Finance (f)	**Wf:** Finance for water security	**Ff:** Finance for food security	**If:** Finance for income security

4.2 Indicators

Consistent with the FRDP M&E Strategy, our approach to the development of adaptation indicators for the water and agriculture sectors was informed by resilient development *process*, *outcome* and *impact* indicators. These are described in Section 2.2.1. Indicators from the NSDP M&E Framework that aligned with the tentative targets were reviewed and further developed through the workshop activities.

5. LOSS AND DAMAGE CONSIDERATIONS

Loss and damage are included as separate to climate change adaptation in the Paris Agreement. This recognises that L&D will occur despite adaptation efforts to increase adaptive capacity in vulnerable countries. Under the Katowice Climate Package, L&D can now be reported on separately from adaptation. This provided an opportunity for Vanuatu to include targets and indicators for L&D in its NDC. Such reporting can form part of the global stocktake and flag needs and challenges for the country in the face of human-induced climate change. Other potential benefits of enhanced reporting and attention include:

- Identification of possible actions to "address" L&D
- Quantification of L&D
- Identification of realistic financial resources required
- Definition, agreement or common understanding amongst Parties on what L&D constitutes
- Showcasing initiative on L&D activities.

While there is no universal definition for L&D, Table 5 provides an overview of the types of L&D impacts identified by the UNFCCC with examples as they are relevant for the water and agriculture sectors.

Table 5 – Types of L&D with corresponding examples relevant to the water and agriculture sector

Type of Loss and damage	Example relevant to agriculture and water sector
Sudden onset events	Storms, floods, cyclones, storm surges
Slow onset events	Sea level rise, salinisation, drought
Economic losses	Lost crops, lost income
Non-economic losses	Health (physical and mental), movement of families

Broadly, L&D can be divided in three parts:

- Avoided L&D (through mitigation and adaptation)
- Unavoided (could have been prevented with mitigation and adaptation)
- Unavoidable L&D (inevitable L&D because adaptive capacity is exhausted).

Reporting on L&D needs to be sensitive to these the differences between avoidable and unavoidable L&D. Indicators could be for unavoidable L&D that is a direct result of impacts that occur despite reasonable adaptation efforts or increase in adaptive capacity. In developing these indicators, consideration needs to be given to impacts that are "abnormal". For example, disasters and phenomena that are more severe than usual, more frequent than usual or has never happened before.

While the development of targets and indicators for L&D is a challenging process, the NDRRCC policy already outlines actions by the Government of Vanuatu (see section 7.4.4). Figure 2 outlines actions on loss and damage that are identified in the NCCDRR policy. Beyond this, Vanuatu has engaged in a dialogue with the Warsaw International Mechanism on L&D regarding risk reduction, insurance mechanisms and rehabilitation.

Actions

Take action around loss and damage by:

- strongly advocating internationally and domestically to operationalise and implement action under the Warsaw International Mechanism for Loss and Damage;
- developing a loss and damage implementation framework, including risk sharing, insurance and compensation approaches at replacement value;
- conducting assessments on potential and actual loss and damage across the country linked with ongoing vulnerability assessment processes;
- determining priority Vanuatu sectoral issues and quantifying losses (e.g. food security, culture, ecosystem services and integrity);
- mainstreaming loss and damage into land and relocation policies and laws;
- providing clarity on enforcement of and the mandate for climate proofing development among government line agencies; and
- ensuring that the design and construction of public and other major infrastructure and development projects consider current and projected risks in order to minimise loss and damage, especially by developing and adhering to climate-proofed building codes, environmental impact assessments, regulations and development guidelines.

Figure 1 – NCCDRR Section 7.4.4 Actions to address L&D from climate change impacts, p.19

The Enhanced Transparency Framework in the Katowice Climate Package provides some guidance on how L&D can be included in country's NDCs, specifically noting:

> "each interested party may provide information related to enhancing understanding, action and support, on a cooperative and facilitative basis, to avert, minimise and address loss and damage associated with climate change impacts, considering projected changes in climate-related risks, vulnerabilities, adaptive capacities and exposure" (Section G of the Enhanced Transparency Framework, Paragraph 115).

This paragraph specifically notes a focus on: observed and potential climate change impacts; activities related to averting, minimising and addressing loss and damage associated with the adverse effects of climate change; and institutional arrangements to facilitate the implementation of the activities. Information on what kind of support would be needed could also be included.

Targets and indicators for L&D is not currently considered in the NSDP, the NVAF or the SDGs. As a result, there is no clear direction on how they can be aligned or what types of indicators (i.e. process, outcome or impact indicators) can be developed. This context formed the basis for discussions on L&D as part of the workshops.

6. AGRICULTURAL SECTOR TARGETS AND INDICATORS

This section presents the adaptation targets and indicators for the agricultural sector in Vanuatu based on consultations undertaken through the project. First, it defines the goal and targets identified for the agricultural sector. Second, it outlines a long list of process- and outcome-based indicators, showing the alignment with relevant NSDP indicators. Third, it identifies the data availability and gaps related to these indicators. A prioritised list of targets and indicators for the agricultural sector are listed in Section 8.1.

As noted in the limitations section of the report, at both workshops many representatives from the agricultural sector were unable to attend. While targets and indicators developed and validated with stakeholders from the agriculture sector, further validation with a broader range of agricultural and environmental stakeholders would be beneficial.

6.1. Goal and targets for agricultural sector

The overarching goal for the agricultural sector was identified as: **"***Agriculture is able to support household* ***income*** *and* ***food*** *needs in a changing climate*". In contributing to the achievement of this goal, two targets were identified:

- **Target Ag1:** By 2022, 80% of **agriculture SMEs and private sector operators** are able to generate sufficient income to cover essential household needs and services
- **Target Ag2:** By 2030, 100% of identified measures for **enhancing the resilience of subsistence agricultur**e in a changing climate in the six provinces have been implemented.

These targets form the overarching basis for the development of subsequent indicators.

6.2 Indicators for the agricultural sector

The long list of process- or outcome-based indicators developed and validated through the two workshops are presented in Table 6. As noted above, we propose these be further validated with a broader group of agricultural sector stakeholders to further refine the long-list of indicators, as well as the prioritised list outlined in Section 8.1.

Table 6 – Identified targets and indicators for the agriculture sector

Targets	Process-based Indicators [relatable NSDP Indicators]	Outcome-based Indicators [relatable NSDP Indicators]	Relatable NSDP Indicator
Target Ag1: By 2022, 80% of **agriculture SMEs and private sector operators** are able to generate sufficient income to cover essential household needs and services	**Indicator Ag1.1: Climate vulnerable agriculture SMEs and private sector operators** for all six provinces **mapped,** using GIS as well as human-rights based, gender-sensitive and socially inclusive approaches and methods of assessment. **[ENV 1.1.2; ENV 1.1.3; ENV 1.4.3]** **Indicator Ag1.2: Natural resource** related measures to strengthen **agriculture SMEs and private sector operators** in the six provinces identified and implemented (e.g. soil and land quality and access, stocks of climate resilience seedlings) **[SOC 1.7.2]** **Indicator Ag1.3: Infrastructure** related measures to strengthen **agriculture SMEs and private sector operators** in the six provinces identified and implemented (e.g. inter-island freight; extension services, stocks of climate resilience biotechnology and equipment; [post-disaster] value chain support system). **[ECO 3.4.1]** **Indicator Ag1.4: Skills and training** related measures to strengthen **agriculture SMEs and private sector operators** in the six provinces identified and implemented (e.g. climate and disaster resilient cropping training, produce market, value chain production, etc). **[ENV 1.4.2; ENV 1.5.1]** **Indicator Ag1.5: Institutional and governance** related measures to strengthen **agriculture SMEs and private sector operators** in the six provinces identified and implemented (community decision-making, planning and action related to supporting agriculture SMEs at community, area, province level) **Indicator Ag1.6: Financing** related measures to strengthen **agriculture SMEs and private sector operators** in the six provinces identified and implemented (e.g. agriculture SME insurance cover)	**Indicator Ag1.7:** Proportion of **agriculture SMEs and private sector operators** in each of the six provinces operating in normal and (climate, disaster and environmentally) stressed times **[ECO 3.4.2; ECO 4.2.1]** **Indicator Ag1.8:** Changes in the number of agriculture SMEs **and private sector operators** in the most vulnerable communities in each of the six provinces. **[ENV 1.1.3; ECO 3.4.2]** **Indicator Ag1.9:** Proportion of men and women operating agriculture SMEs **and** private **sector operators** in each of the six provinces in normal and (climate, disaster and environmentally) stressed times. **[ECO 3.4.2; ECO 4.2.1]** **Indicator Ag1.10:** Turnover generated by **agriculture SMEs and private sector** operators, by gender and province in normal and (climate, disaster and environmentally) stressed times. **[ENV 1.1.3]** **Indicator Ag1.11:** Percentage of **agriculture SMEs and private sector operators** covered by crop and livestock insurance **Indicator Ag1.12:** Proportion of **agriculture SMEs and private sector operators** in each of the six provinces operating on customary land in normal and (climate, disaster and environmentally) stressed times [**ECO 3.4.2; ECO 4.2.1]** **Indicator Ag1.13:** Total number of agriculture-based rural producer cooperatives registered by province in normal and (climate, disaster and environmentally) stressed times **[ECO 3.4.2; ECO 4.2.1]** **Indicator Ag1.14:** Total number of primary, secondary and tertiary schools that teach climate resilient **commercial** agriculture.	**ENV 1.1.1** Proportion of households engaged in production of food for own consumption **ENV 1.1.2** Up to date data on primary production (agriculture, livestock, forestry, fisheries, biosecurity) available for analysis and informed decision-making and reporting **ENV 1.1.3** Average incidence of food poverty at the household level (Food Poverty Line) **SOC 1.2.2** Proportion of population possessing common and basic traditional production skills related to weaving, transport, housing, farming, food preparation **ENV 1.4.2** Total number of people receiving training in food storage and preservation per year in MALFFB led, NGO or partnered initiatives **ENV 1.4.3** Establishment of land use capability mapping systems to determine which crops and farming systems are best suited to different

Target Ag2: By 2030, 100% of identified measures for **enhancing the resilience of subsistence agricultur**e in a changing climate in the six provinces have been implemented.	**Indicator Ag2.1: Climate vulnerabilities of subsistence agriculture** for all six provinces **mapped,** using GIS as well as human-rights based, gender-sensitive and socially inclusive approaches and methods of assessment. **[ENV 1.1.2; ENV 1.1.3; ENV 1.4.3]** **Indicator Ag2.2: Natural resource** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. soil and land quality and access) **[SOC 1.7.2]** **Indicator Ag2.3: Infrastructure** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. outer island roads, extension services, stocks of climate resilience seedlings and equipment). **[ECO 3.4.1]** **Indicator Ag2.4: Skills and training** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. climate and disaster resilient cropping training, number of farms and/or level of crop harvest per farmer in normal and stress times). **[ENV 1.4.2; ENV 1.5.1]** **Indicator Ag2.5: Institutional and governance** related measures to **subsistence agriculture** in the six provinces identified and implemented (community decision-making, planning and action related to supporting agriculture SMEs at community, area, province level) **Indicator Ag2.6: Finance** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. agriculture SME insurance)	**Indicator Ag2.7: subsistence gardens** in each of the six provinces producing food in normal and (climate, disaster and environmentally) stressed times **[ECO 3.4.2; ECO 4.2.1]** **Indicator Ag2.8:** Changes in the **subsistence gardens** in the most vulnerable communities in each of the six provinces by cultivation area and individual crop performance. **[ENV 1.1.3; ECO 3.4.2]** **Indicator Ag2.9:** Proportion of men and women engaged in subsistence agriculture in each of the six provinces in normal and (climate, disaster and environmentally) stressed times. **[ECO 3.4.2; ECO 4.2.1]** **Indicator Ag2.10:** Subsistence crop turnover generated by, by gender and province in normal and (climate, disaster and environmentally) stressed times. **[ENV 1.1.3]** **Indicator Ag2.11:** Percentage of subsistence gardens covered by crop insurance **[no reference to insurance in NSDP]** **Indicator Ag2.12:** Percentage of subsistence farmers in continuing to apply traditional knowledge and access planting materials for subsistence purposes. **[SOC 1.2.2]** **Indicator Ag2.13:** Average incidence of food poverty at the household level post-disaster (Food Poverty Line) [**ENV 1.1.3]** **Indicator Ag2.14:** Total number of primary, secondary and tertiary schools that teach climate resilient **subsistent** agriculture. **Indicator Ag2.15:** Number of households with access to sustainable climate-smart quality food production sufficient for daily food consumption in normal and (climate, disaster and environmentally) stressed times. **[ENV 1.1.1]**	areas **ENV 1.3.2** Domestic food price level **ENV 1.5.1** Proportion of producers across the productive sector that have undergone Agro-Met training **ENV 1.5.3** Proportion of farmers involved in integrated farming practices **ECO 3.4.1** Total annual number of agricultural extension services per capita by province **ENV 3.1.2** Institutional strengthening of NAB, Department of Climate Change and other MoCC departments **ECO 3.4.2** Total number of rural producer cooperatives registered by province **ECO 4.2.1** Proportion of rural households engaged in trade with family in urban centres **ECO 4.3.1** Total number of processed local products produced per annum for domestic consumption and export **ECO 4.3.2** Ratio of processed export commodities (including coconut, kava, cocoa, coffee) to raw exports

6.3 Data availability and gaps for agriculture indicators

Ensuring adequate availability of data to track indicators is crucial for successful achievement of the targets. The results of the workshops showed that data is available to track and report against some of the targets and indicators, but is limited or non-existent for others. Table 7 maps data sources against each target and indicator and outlines where data is either available, partially available or not available at all.

Based on consultation, relevant data was identified as available through the Department of Agriculture reporting mechanisms such as the annual reports and six-monthly reports. In addition, there are provincial statistics and partner funded projects (e.g. FAO, SPREP). These were identified as largely covering indicators related to skills, natural resource measures, institutional actions and infrastructure. It may be the case that specific indicators proposed here need to be refined to best align with the type of data that is available through these different sources.

Gaps for data are mostly associated with finance, especially where crop insurance is concerned. Crop insurance is a development matter that is still to be significantly addressed or embraced within the agriculture sector but is unlikely to occur in the near future. There are still gaps where private sector engagement in agriculture is concerned, particularly in the provinces. Another gap relates to the indicator proposed to measure integration of agriculture into education curriculum. While data is available for government training institutions, there are gaps in data where private sector led training providers are concerned.

The importance of SMEs in agriculture were identified as a priority, however, there is no reference to SMEs in the NSDP. In order to be able to measure this target, a baseline would need to be developed. This may be possible through the upcoming agriculture census, however, there are questions whether this will generate sufficient income. There may be ways to assess SME related indicators by proxy – for example, measuring the proportion of SMEs that stay in business (i.e. sufficient income) and those that had to close down (i.e. insufficient income). Other opportunities to purse include looking at alignment opportunities with the M&E framework that is currently being developed by the Department of Agriculture. Further validation with agricultural stakeholders will help refine an understanding of data gaps for indicators.

Table 7 – Availability of data sources to report against identified adaptation targets and indicators in the agriculture sector where green=data fully available, yellow=partial data available, red= no data available

Targets	Process-based indicators [relatable NSDP indicators]	Available data source process-based indicators	Outcome-based indicators [relatable NSDP indicators]	Available data source outcome-based indicators
Target Ag1: By 2022, 80% of **agriculture SMEs and private sector operators** are able to generate sufficient income to cover essential household needs and services	**Indicator Ag1.1: Climate vulnerable agriculture SMEs and private sector operators** for all six provinces **mapped,** using GIS as well as human-rights based, gender-sensitive and socially inclusive approaches and methods of assessment. **[ENV 1.1.2; ENV 1.1.3; ENV 1.4.3]**	**Quarterly and six-monthly reports, project reports**	**Indicator Ag1.7:** Proportion of **agriculture SMEs and private sector operators** in each of the six provinces operating in normal and (climate, disaster and environmentally) stressed times **[ECO 3.4.2; ECO 4.2.1]**	**Annual Development reports, Disaster assessment reports, community profiles**
	Indicator Ag1.2: Natural resource related measures to strengthen **agriculture SMEs and private sector operators** in the six provinces identified and implemented (e.g. soil and land quality and access, stocks of climate resilience seedlings) **[SOC 1.7.2]**	**Quarterly and six-monthly reports, project reports**	**Indicator Ag1.8:** Changes in the number of agriculture SMEs **and private sector operators** in the most vulnerable communities in each of the six provinces. **[ENV 1.1.3; ECO 3.4.2]**	**Annual Development reports, disaster assessment reports, community profiles**
	Indicator Ag1.3: Infrastructure related measures to strengthen **agriculture SMEs and private sector operators** in the six provinces identified and implemented (e.g. inter-island freight; extension services, stocks of climate resilience biotechnology and equipment; [post-disaster] value chain support system). **[ECO 3.4.1]**	**Quarterly and six-monthly reports, project reports**	**Indicator Ag1.9:** Proportion of men and women operating agriculture SMEs **and private sector operators** in each of the six provinces in normal and (climate, disaster and environmentally) stressed times. **[ECO 3.4.2; ECO 4.2.1**	**Annual Development reports, Disaster assessment reports, community profiles**
	Indicator Ag1.4: Skills and training related measures to strengthen **agriculture SMEs and private sector**	**Quarterly and six-monthly reports, project reports**	**Indicator Ag1.10:** Turnover generated by **agriculture SMEs and private sector operators**, by gender and province in	**Annual Development reports, disaster assessment reports, business surveys**

	operators in the six provinces identified and implemented (e.g. climate and disaster resilient cropping training, produce market, value chain production, etc). **[ENV 1.4.2; ENV 1.5.1]**		normal and (climate, disaster and environmentally) stressed times. **[ENV 1.1.3]**	
	Indicator Ag1.5: Institutional and governance related measures to strengthen **agriculture SMEs and private sector operators** in the six provinces identified and implemented (community decision-making, planning and action related to supporting agriculture SMEs at community, area, province level)	**Quarterly and six-monthly reports, project reports**	**Indicator Ag1.11:** Percentage of **agriculture SMEs and private sector operators** covered by crop and livestock insurance	**National and provincial budgets, Annual development reports, business surveys**
	Indicator Ag1.6: Financing related measures to strengthen **agriculture SMEs and private sector operators** in the six provinces identified and implemented (e.g. agriculture SME insurance cover	**Department or provincial budget reports, project reports**	**Indicator Ag1.12:** Proportion of **agriculture SMEs and private sector operators** in each of the six provinces operating on customary land in normal and (climate, disaster and environmentally) stressed times **[ECO 3.4.2; ECO 4.2.1]**	**National and provincial budgets, annual development reports, business surveys**
			Indicator Ag1.13: Total number of agriculture-based rural producer cooperatives registered by province in	**Department of Cooperatives reports, annual development reports, provincial business license listings, disaster assessment reports**
			Indicator Ag1.14: Proportion of primary, secondary and tertiary schools that teach climate resilient **commercial** agriculture.	**Education Department curriculum, Vanuatu Agriculture College reports, agriculture census**
Target Ag2: By 2030, 100% of identified measures for enhancing the resilience of	**Indicator Ag2.1: Climate vulnerabilities of subsistence agriculture** for all six provinces **mapped,** using GIS as well as human-rights based, gender-	**Quarterly and six-monthly reports, project reports**	**Indicator Ag2.7:** Proportion of **subsistence gardens** in each of the six provinces producing food in normal and (climate, disaster and environmentally) stressed times **[ECO**	**Annual Development reports, community profiles, disaster assessment reports, community profiles, agriculture census**

subsistence agriculture in a changing climate in the six provinces have been implemented.	sensitive and socially inclusive approaches and methods of assessment. **[ENV 1.1.2; ENV 1.1.3; ENV 1.4.3]**		**3.4.2; ECO 4.2.1]**	
	Indicator Ag2.2: Natural resource related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. soil and land quality and access) **[SOC 1.7.2]**	**Quarterly and six-monthly reports, project reports, National agricultural census**	**Indicator Ag2.8:** Changes in the level subsistence agriculture harvests in the most vulnerable communities in each of the six provinces by cultivation area and individual crop performance. **[ENV 1.1.3; ECO 3.4.2]**	**Annual Development reports, community profiles**
	Indicator Ag2.3: Infrastructure related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. outer island roads, extension services, stocks of climate resilience seedlings and equipment). **[ECO 3.4.1]**	**Quarterly and six-monthly reports, project reports, Annual development reports, National agricultural census**	**Indicator Ag2.9:** Proportion of men and women engaged in subsistence agriculture in each of the six provinces in normal and (climate, disaster and environmentally) stressed times. **[ECO 3.4.2; ECO 4.2.1]**	**Annual development reports, agriculture census, disaster assessment reports, community profiles**
	Indicator Ag2.4: Skills and training related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. climate and disaster resilient cropping training, number of farms and/or level of crop harvest per farmer in normal and stress times). **[ENV 1.4.2; ENV 1.5.1]**	**Quarterly and six-monthly reports, project reports**	**Indicator Ag2.10:** Subsistence crop turnover generated by, by gender and province in normal and (climate, disaster and environmentally) stressed times. **[ENV 1.1.3]**	**Annual development reports, agriculture census, disaster assessment reports**
	Indicator Ag2.5: Institutional and governance related measures to **subsistence agriculture** in the six provinces identified and implemented (community decision-making, planning and action related to supporting agriculture SMEs at community, area, province level)	**Quarterly and six-monthly reports, project reports**	**Indicator Ag2.11:** Percentage of subsistence gardens covered by crop insurance **[no reference to insurance in NSDP]**	**Agriculture census, disaster assessment reports**

	Indicator Ag2.6: **Finance** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. agriculture SME insurance)	**Department of Agriculture budgets, provincial budgets, project budgets**	**Indicator Ag2.12:** Percentage of subsistence farmers in continuing to apply traditional knowledge and access planting materials for subsistence purposes. **[SOC 1.2.2]**	**Annual development reports, Disaster assessment reports, agriculture census**
			Indicator Ag2.13: Average incidence of food poverty at the household level post-disaster (Food Poverty Line) [**ENV 1.1.3]**	**Post disaster assessments**
			Indicator Ag2.14: Total number of primary, secondary and tertiary schools that teach climate resilient **subsistent** agriculture.	**Department of Education curriculum, Vanuatu Agriculture College curriculum, vocational learning service provider reports**
			Indicator Ag2.15: Number of households with access to sustainable climate-smart quality food production sufficient for daily food consumption in normal and (climate, disaster and environmentally) stressed times. **[ENV 1.1.1]**	**Annual development reports, disaster assessment reports, agriculture census**

7. WATER SECTOR TARGETS AND INDICATORS

This section outlines the climate change adaptation targets and indicators for the water sector in Vanuatu, as identified through project activities. First, it defines the goal and targets identified for the water sector. Second, it outlines a long list of process- and outcome-based indicators from the consultations. As with the agricultural sector indicators, this shows the alignment of proposed agricultural indicators with relatable NSDP indicators. Third, it identifies the data availability and gaps related to these indicators. A prioritised list of targets and indicators for the water sector are listed in Section 8.2.

7.1 Adaptation goal and target for water sector

Based on the workshop consultations, the overarching goal for the water sector was identified as: *"The water management system is able to support water needs for all communities in a changing climate".* In contributing to the achievement of this goal, two targets were established:

- **Target Wa1:** By 2030, 60%[2] communities in the six provinces have developed Drinking Water Safety and Security Plans and are able to address water needs.
- **Target Wa2:** By 2030, 6 **climate-resilient** water protection zones declared, providing sufficient urban water supply.

These targets form the overarching basis for the development of subsequent indicators.

7.2 Indicators for water

The long list of process- and outcome-based indicators for the water sector as developed and validated through the two workshops are presented in Table 8. These indicators are prioritised further and the number narrowed in Section 8.2.

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[2] While consultations identified the target as 100%, this is an aspirational target. A more realistic figure has been proposed within a 50%-70% range.

Table 8 – Identified adaptation targets and indicators for the water sector

Targets	Process-based Indicators [relatable NSDP Indicators]	Outcome-based Indicators [relatable NSDP Indicators]	Relatable NSDP Indicator
Target Wa1: By 2030, 60% communities in the six provinces have developed DWSSP and are able to address water needs.	**Indicator Wa1.1: Water-climate vulnerable rural communities** for all six provinces **mapped,** using GIS as well as human-rights based, gender-sensitive and socially inclusive approaches and methods of assessment. **[ENV 4.2.2; ECO 2.2.1; SOC 4.1.1; SOC 4.1.2; SOC 4.4.2]** **Indicator Wa 1.2: Natural resource** related measures to addressing water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. protection of natural water sources; improved wastewater disposal; water quality) **[ENV 4.2.1; ECO 2.2.1; ENV 3.4.1]** **Indicator Wa 1.3: Infrastructure (including technology and services)** related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. cyclone-proof tanks, water treatment, watsan technology for drought (scarcity) periods) **[ECO 2.2.1; SOC 4.5.1; SOC 4.5.2]** **Indicator Wa1.4: Skills** related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. post-disaster water safety training) **[ECO 2.2.1; ECO 2.2.2; SOC 4.1.3; SOC 4.4.1]** **Indicator Wa1.5: Institutional and governance** related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. community water governance; water efficiency measures; development, implementation and monitoring of community DWSSP) **[ECO 2.2.1]** **Indicator Wa1.6: Financing** related measures to	**Indicator Wa 1.7:** Proportion of **water-climate vulnerable rural communities** with adequate access to water supply in normal and (climate, disaster and environmentally) stressed times **[ENV 4.2.1; ECO 2.2.1]** **Indicator Wa1.8:** Proportion of men and women with adequate access to water in each of the six provinces in normal and (climate, disaster and environmentally) stressed times. **[ECO 3.4.2; ECO 4.2.1]** **Indicator Wa1.9:** Percentage of **water-climate vulnerable rural communities** in the six provinces covered by water insurance **Indicator Wa1.10:** Number of **water-climate vulnerable rural communities** with at least 5 individuals who have been trained on climate-resilient water management.	**SOC 4.1.1** Proportion of government departments with gender responsive policies, legislation and programs **SOC 4.1.2** Number of decisions in which women participate **SOC 4.1.3** Indicators of women's empowerment **ENV 3.4.1** Percentage of public schools using the climate change and disaster risk reduction modules in national curriculum at all levels **ENV 4.2.1** Number of declared Water Protection Zones *(**Target:** 6 Water Protection Zones declared* **ENV 4.2.2** Establishment of GIS mapping relevant to the management of forest activities *(**Target:** By 2030 100% of forest areas of significance mapped)* **SOC 4.4.1** Proportion of the activities of the National Human Rights Commission (NHRC) implemented **SOC 4.4.2** Proportion of human rights related conventions ratified **SOC 4.5.1** Proportion of Government Offices and public facilities with ramp access or some disability friendly rating **SOC 6.5.1** Change in annual budget going to Provinces, Municipalities towards operations/programs (Devolution of funding authority) **SOC 6.8.1** Percentage of aid the government sector reported on the government's budget **ENV 3.3.1** Number of support plans available to communities for coordination, planning,

	address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. community water system insurance cover) **[ECO 2.2.1; SOC 6.5.1; SOC 6.8.1; ENV3.3.1]**		preparedness, response and recovery **ECO 2.2.1** Proportion of population with reliable access to safe drinking water *(**Target:** 100% by 2030)*
Target Wa2: By 2030, 6 **climate-resilient** water protection zones declared, providing sufficient urban water supply.	**Indicator Wa2.1**: **Climate-resilient natural water** sources for urban water supply needs identified and mapped using GIS **[ENV 4.2.1; ENV 4.2.2]** **Indicator Wa 2.2: Natural resource** related measures to protect climate vulnerable urban water sources identified and implemented (e.g. reforestation of watershed) **[ECO 2.2.1; ENV4.3.1; ENV4.6.1; ENV4.6.2]** **Indicator Wa 2.3: Infrastructure (including technology and services)** related measures to protect climate vulnerable urban water sources identified and implemented (e.g. fencing of water source) **[ECO 2.2.1]** **Indicator Wa 2.4: Skills** related measures to protect climate vulnerable urban water sources identified and implemented (e.g. watershed reforestation training) **[ECO 2.2.1; ENV4.7.1]** **Indicator Wa 2.5: Institutional and governance** related measures to protect climate vulnerable urban water sources identified and implemented (e.g. legislating projection of watershed) **[ECO 2.2.1]** **Indicator Wa 2.6: Financing** related measures to protect climate vulnerable urban water sources identified and implemented (e.g. reforestation of watershed) **[ECO 2.2.1]**	**Indicator Wa2.7:** Proportion of urban household with access to climate-resilient natural water source in the six provinces **[ENV 4.2.1; ENV 4.2.2; ECO 2.2.1]** **Indicator Wa2.8:** Percentage of **water-climate vulnerable urban communities** in the six provinces covered by water insurance **[ENV 4.2.1; ECO 2.2.1**]	**ENV 4.2.1** Number of declared Water Protection Zones *(**Target:** 6 Water Protection Zones declared* **ENV 4.2.2** Establishment of GIS mapping relevant to the management of forest activities *(**Target:** By 2030 100% of forest areas of significance mapped)* **ENV 4.4.2** Number of integrated coastal management plans developed and implemented **ENV 4.6.1** Annual estimated area (square km) of reforestation and rehabilitation **ENV 4.6.2** Proportion of licensees harvesting within their allocated quota or Proportion of licensee operations being monitored **ENV 4.3.1** Proportion of extraction activities complying with EIA requirements **ENV 4.7.1** Total annual outreach and awareness activities undertaken by or in partnership with the DEPC **ECO 2.2.1** Proportion of population with reliable access to safe drinking water *(**Target:** 100% by 2030)*

7.3 Data availability and gaps for water targets and indicators

The results of the workshops showed that data is available to track and report against some of the targets and indicators, but limited or non-existent for others. Table 9 maps data sources against each target and indicator and outlines where data is either available, partially available or not available at all.

Data seems to be particularly available through the Department of Water Resources reporting processes such as annual and six-monthly reports that is provided by Water officers and project or partner initiatives. The Department of Water Resources has a comprehensive water resources inventory which has mapped out most water sources in all provinces. Indicators related to water climate vulnerable communities (that have been mapped) can be accessed, along with indicators that point to institutional measures through the Drinking Water Safety and Security Plans (DWSSPs) process.

Gaps for data gathering are mainly related to financial information. It was noted that data regarding finance or budgets at the community level and information on water insurance will be hard to come by. Water insurance is a matter that is yet to be fully incorporated or taken into consideration where water resources management is concerned.

Partial data is available for infrastructure and skills related indicators. The DWSSP process is a platform that is able to inform these indicators however not all communities or provinces have rolled out the DWSSP process.

Table 9 – Availability of data sources to report against identified adaptation targets and indicators in the water sector where green=data fully available, yellow=partial data available, red= no data available

Targets	Process-based Indicators [relatable NSDP Indicators]	Available data process-based indicators	Outcome-based Indicators [relatable NSDP Indicators]	Available data source outcome-based indicators
Target Wa1: By 2030, 60% communities in the six provinces have developed DWSSP and are able to address water needs.	Indicator Wa1.1: **Water-climate vulnerable rural communities** for all six provinces **mapped,** using GIS as well as human-rights based, gender-sensitive and socially inclusive approaches and methods of assessment. **[ENV 4.2.2; ECO 2.2.1; SOC 4.1.1; SOC 4.1.2; SOC 4.4.2]**	National Water Resources Inventory, Drinking Water Safety and Security Plans reports, business plans, quarterly reports	Indicator Wa 1.7: Proportion of **water-climate vulnerable rural communities** with adequate access to water supply in normal and (climate, disaster and environmentally) stressed times **[ENV 4.2.1; ECO 2.2.1]**	Disaster Assessment reports, Annual Development reports, national or provincial census, community profiles
	Indicator Wa 1.2: **Natural resource** related measures to addressing water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. protection of natural water sources; improved wastewater disposal; water quality) **[ENV 4.2.1; ECO 2.2.1; ENV 3.4.1]**	National Water Resources Inventory, Drinking Water Safety and Security Plans reports, business plans, quarterly reports	Indicator Wa1.8: Proportion of men and women with adequate access to water in each of the six provinces in normal and (climate, disaster and environmentally) stressed times. **[ECO 3.4.2; ECO 4.2.1]**	Disaster Assessment reports, Annual Development reports, national or provincial census, community profiles
	Indicator Wa 1.3: **Infrastructure (including technology and services)** related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. cyclone-proof tanks, water treatment, technology for drought (scarcity) periods) **[ECO 2.2.1; SOC 4.5.1; SOC 4.5.2]**	National Water Resources Inventory, Drinking Water Safety and Security Plans reports, business plans, quarterly reports	Indicator Wa1.9: Percentage of **water-climate vulnerable rural communities** in the six provinces covered by water insurance	Department and provincial budgets, Annual Development reports
	Indicator Wa1.4: **Skills** related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. post-disaster water safety training) **[ECO 2.2.1; ECO 2.2.2; SOC 4.1.3; SOC 4.4.1]**	DWSSPs, business plans, quarterly reports	Indicator Wa1.10: Number of **water-climate vulnerable rural communities** with at least 5 individuals who have been trained on climate-resilient water management.	DWSSPs, Business Plans, quarterly reports, Annual Development Reports,
	Indicator Wa1.5: **Institutional and**	DWSSPs, business plans,		

	governance related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. community water governance; water efficiency measures; development, implementation and monitoring of community DWSSP) **[ECO 2.2.1]**	**quarterly reports**		
	Indicator Wa1.6: Financing related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. community water system insurance cover) **[ECO 2.2.1; SOC 6.5.1; SOC 6.8.1; ENV3.3.1]**	**Department and provincial budgets**		
Target Wa2: By 2030, 6 **climate-resilient** water protection zones declared, providing sufficient urban water supply.	**Indicator Wa2.1: Climate-resilient natural water sources** for urban water supply needs identified and mapped using GIS **[ENV 4.2.1; ENV 4.2.2]**	**Water resources inventory, DWSSP reports, quarterly reports**	**Indicator Wa2.7:** Proportion of urban household with access to climate-resilient natural water source in the six provinces **[ENV 4.2.1; ENV 4.2.2; ECO 2.2.1]**	**Annual Development reports, census, community profiles**
	Indicator Wa 2.2: Natural resource related measures to protect climate vulnerable urban water sources identified and implemented (e.g. reforestation of watershed) **[ECO 2.2.1; ENV4.3.1; ENV4.6.1; ENV4.6.2]**	**Water resources inventory, DWSSP reports, quarterly reports**	**Indicator Wa2.8:** Percentage of **water-climate vulnerable urban communities** in the six provinces covered by water insurance **[ENV 4.2.1; ECO 2.2.1]**	**Annual Development Reports, census**
	Indicator Wa 2.3: Infrastructure (including technology and services) related measures to protect climate vulnerable urban water sources identified and implemented (e.g. fencing of water source) **[ECO 2.2.1]**	**DWSSPs, Business Plans, quarterly reports**		
	Indicator Wa 2.4: Skills related measures to protect climate vulnerable urban water sources identified and implemented (e.g. watershed	**DWSSPs, Business Plans, Quarterly reports**		

	reforestation training) **[ECO 2.2.1; ENV4.7.1]**			
	Indicator Wa 2.5: Institutional and governance related measures to protect climate vulnerable urban water sources identified and implemented (e.g. legislating projection of watershed) **[ECO 2.2.1]**	**Water resource inventories, DWSSPs, Business Plans, Quarterly reports**		
	Indicator Wa 2.6: Financing related measures to protect climate vulnerable urban water sources identified and implemented (e.g. reforestation of watershed) **[ECO 2.2.1]**	**Department or provincial budgets, DWSSP reports**		

8. PROPOSED PRIORITY INDICATORS FOR THE AGRICULTURE AND WATER SECTORS

The previous section presented a long list of process- and outcome-based indicators for agricultural and water sectors. This comprised of 29 indicators for the agriculture sector, and 18 for the water sector. An important next step in the process is prioritise and narrow the number of proposed indicators for these sectors.

This section outlines an approach for the possible prioritisation of targets and indicators. The approach – as outlined below – was developed after the conduct of stakeholder workshops and would benefit from further review and validation from the Government of Vanuatu and stakeholders, prior to the development of the NCD.

The approach to the prioritisation of indicators in the water and agriculture sectors was based on assessing each indicator across five different factors. These factors sought to identify what the highest priority indicators would be in terms of monitoring issues of greatest important, while also being cognisant of data limitations. These factors included:

- Urgency
- Adaptation impact potential
- Alignment with current frameworks, policies and processes
- Usability, relevance and sustainability
- Achievability and data availability

Each indicator outlined in Sections 6 and 7 were assessed and given a rating from 1 (low) to high (5) against these factors. The weightings given were based on expertise in the field of adaptation by the technical team, priority expressed by participants in workshops, and information that was collated in Sections 1-4.

A total score of 25 could be reached for each indicator. Indicators which scored 15 were identified as being of being – on balance – a priority indicator for the Government of Vanuatu to consider further. An important part of narrowing down the indicators that will be included in Vanuatu's NDC is to focus on those indicators for which there is data available.

Each priority indicator was given an indication of the time frame for commencement and finalisation of the indicator between 2021-2025. This timeline was based on three considerations, including:

- The global stocktake that takes place in 2023
- The mid-review for Vanuatu to report against the NSDP targets also in 2023
- The next submission of the NDC in 2025 to the UNFCCC.

For each priority indicator an assessment was made as to whether its achievement was conditional on additional external funding or could be achieved unconditionally. Unconditional measures would be those where projects are already underway, money is allocated or where it could align with existing available resources. Conditional pledges are those where the implementation is reliant on partial or full external funding. This assessment was made by the technical team included only limited consultation due to tight project timelines. The relative conditionally of the assessment could usefully be validated further.

All adaptation commitments made in the NDC can be adjusted through the Biennial Transparency Reports or other adaptation communication. Vanuatu should also note in its NDC that adaptation commitments can be subject to change depending on circumstances that are beyond Vanuatu's control, such as weather-induced natural disasters (e.g. tropical cyclones), geological disasters (e.g.

volcano outbreaks), technological disasters (e.g. oil spills), biological disaster (e.g. pandemic). As for the latter, the most recent biological disaster of the SARS-CoV-2 outbreak will still have to show its economic effects on the country.

8.1 Agriculture sector

Workshop outcomes in the agriculture sector identified a long list of 27 indicators. Based on the ranking exercise, Vanuatu's climate change vulnerabilities, adaptation impact and data availability, a priority list of 13 indicators were identified (see Annex 2). Out of these 13 indicators, 6 are recommended to be included in the NDC (see Table 10). For these indicators, an indicative timeframe for delivery and assessment of whether it can be achieved with or without financial assistance has been provided. The Government of Vanuatu is best positioned to validate the appropriate timelines and financial resources required.

As one of the most important measures, a GIS mapping was identified by stakeholders for various indicators in the agriculture as well as water sectors. GIS mapping could usefully commence soon to prepare for the next NDC in 2025. If desired, a commitment in the enhanced NDC in 2021 could be made to conduct GIS mapping for the agriculture sector by 2025. Streamlining of data collection and GIS mapping might be possible as this was mentioned as being important for various indicators. Indicators that have already data available and can be reported against should be included in the NDC as a priority. Some indicators might already have projects underway which should be continued and, if needed, expanded to achieve the commitments made in the enhanced NDC.

The indicators excluded from the priority list are related to insurance and finance. This decision was made as the primary focus was placed on adaptation to physical climate change impacts and the lack of access to insurance products. This is not to say that the Government of Vanuatu cannot consider insurance in the future, however, it is proposed to exclude it from this NDC. Possible domestic actions could be to start building capacity, education and awareness of the benefits of insurance, identify and offer suitable insurance products and encourage access of expertise from the Fiji Clearinghouse for Risk transfer. It could be streamlined with indicators Ag 2.6, 2.10, Ag2.11, Wa 1.6, Wa 1.9, Wa 2.8.

In the agriculture sector, participants emphasised the importance of resilient SMEs to ensure income security. The targets and indicators developed in regards to strengthen SMEs are not mentioned in existing climate change frameworks, policies and processes. While the financial security of SMEs is important, the technical team has not identified these indicators as a priority as measures would not protect against physical damages from climate change impacts. A number of the indicators developed were vague, hard to achieve or unable to be reported on due to lack of data. Some indicators could be considered for domestic policy making in the area of economics and employment. Possible measures to consider in policymaking could be income security, relief payments in times of droughts, floods and tropical cyclones or encouragement to insure the business.

There is a possibility that the lack of specificity in some indicators for agriculture is reflective of the limited agriculture sector attendees at the workshop. The NDC is required to be strong in its formulation and a final consultation with specific people from the agricultural sector would be recommend to validate the targets and indicators developed during the project.

Table 10 – Indication of financial assistance required with associated timeline and indicative course of action for the priority indicators identified in the agriculture sector.

Target	Indicator	Financial assistance required	Timeline/ required action
Target Ag1: By 2022, 80% of **agriculture SMEs and private sector operators** are able to generate sufficient income to cover essential household needs and services	**Indicator Ag1.8:** Changes in the number of agriculture SMEs **and private sector operators** in the most vulnerable communities in each of the six provinces. **[ENV 1.1.3; ECO 3.4.2]**	No.	**2021:** Identify data sources. **2022-2025:** Collect data on existing SMEs and monitor changes in number of SMEs. Collect parallel weather data, e.g. drought, floods, storm surges, tropical cyclones. **Note:** this is to monitor whether natural disaster have an impact on existing SMEs. It is relatable to adaptation and helpful for L&D considerations.
Target Ag2: By 2030, 100% of identified measures for **enhancing the resilience of subsistence agriculture** in a changing climate in the six provinces have been implemented	**Indicator Ag2.2:** **Natural resource** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. soil and land quality and access) **[SOC 1.7.2]**	Yes	**2021:** Identify financial resources from internal budgets and external funding. **2022:** Commence planning **2023-2025:** Implementation
	Indicator Ag2.3: **Infrastructure** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. outer island roads, extension services, stocks of climate resilience seedlings and equipment). **[ECO 3.4.1]**	Partially	**2021:** Identify financial resources from internal budgets and external funding. **2022:** Commence planning **2023-2025:** Implementation
	Indicator Ag2.4: **Skills and training** related measures to strengthen **subsistence agriculture** in the six provinces identified and implemented (e.g. climate and disaster resilient cropping training, number of farms and/or level of crop harvest per farmer in normal and stress times). **[ENV 1.4.2; ENV 1.5.1]**	Potentially	**2021:** Identify financial resources **2022:** Start developing education material **2023-2025:** Roll out education campaign
	Indicator Ag2.12: Percentage of subsistence farmers in continuing to apply **traditional knowledge** and access planting materials for subsistence purposes. **[SOC 1.2.2]**	No	**2021 – 2022:** Commence developing education material and programmes to upskill farmers in traditional knowledge, where not already in practice and where the application of traditional knowledge increases adaptive capacity.
	Indicator Ag2.14: Total number of primary, secondary and tertiary schools that teach climate resilient **subsistent** agriculture.	Potentially	**2021 – 2022:** Commence developing curriculum activities. **2023-2025:** Roll-out into school operations **Consider streamlining indicator Ag 2.12 and indicators 2.14.**

8.2 Water sector

In total 18 indicators were developed in the water sector that focused on water availability and associated water infrastructure. Based on the ranking exercise, Vanuatu's climate change vulnerabilities, adaptation impact and data availability, this list was further refined to 14 indicators were identified for the water sector (see Annex 2). Out of these 14 indicators, 6 are recommended to be considered for inclusion as part of the NDC (see Table 11). For these indicators, an indicative timeframe for delivery and assessment of whether it can be achieved with or without financial assistance has been provided. As with the agricultural sector indicators, the Government of Vanuatu is best positioned to validate the appropriate timelines and financial resources required.

As with agriculture, GIS mapping was identified as an activity that could be commenced in the short term to help create baselines where needed. Beyond its relevance to both water and agriculture sectors, the need for GIS mapping is also a priority in the NCCDRR. Stakeholders identified the need for GIS mapping for various indicators in the agriculture as well as water sectors which means consolidating the mapping exercise for both sectors is possible. Stakeholders placed a very high emphasis on universal water access for urban and rural communities followed by protection and re-instatement of natural water flows.

Some indicators might already have projects underway which should be continued and, if needed, expanded to achieve the commitments made in the enhanced NDC. As with the agriculture sector, the indicators excluded from the priority list are related to insurance and finance, and for largely the same reasons.

The identified water targets and indicators show more direct relevance to climate change adaptation measures than those in the agriculture sector. All identified water indicators and targets aligned with frameworks and policies and can hence be in part incorporated into existing reporting and data gathering processes. For all indicators, data is either fully or in some instances partially available.
This is likely a reflection of the broad group of water sector stakeholders who were able to attend the workshops.

Table 11 – Indication of financial assistance required with associated timeline and indicative course of action for the priority indicators identified in the water sector.

Target	Indicator	Financial assistance required	Timeline/ required action
Target Wa1: By 2030, 100% of water-climate vulnerable rural communities in the six provinces have developed DWSSP and are able to address water needs in **normal and** (climate, disaster and environmentally) **stressed times**	**Indicator Wa 1.2: Natural resource** related measures to addressing water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. protection of natural water sources; improved wastewater disposal; water quality) **[ENV 4.2.1; ECO 2.2.1; ENV 3.4.1]**	Partially.	**2021:** Identify financial resources from internal budgets and external funding. **2022:** Commence planning **2023-2025:** Implementation
	Indicator Wa 1.3: Infrastructure (including technology and services) related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. cyclone-proof tanks, water treatment, watsan technology for drought (scarcity)	Yes.	**2021:** Identify financial resources from internal budgets and external funding. **2022:** Commence planning **2023-2025:** Implementation
	Indicator Wa1.10: Number of **water-climate vulnerable rural communities** with at least 5 individuals who have been trained on climate-resilient water management.	Partially. For development of education material and provision of training	**2021**: identify communities **2022:** Identify individual and ensure equal gender representation **2023:** Develop education material **2025:** Finalise training
Target Wa2: By 2030, 6 **climate-resilient** water protection zones declared, providing sufficient urban water supply.	**Indicator Wa 2.2: Natural resource** related measures to protect climate vulnerable urban water sources identified and implemented (e.g. reforestation of watershed) **[ECO 2.2.1; ENV4.3.1; ENV4.6.1; ENV4.6.2]**	Yes.	**2021:** Identify financial resources **2022:** Commence planning **2023: 2023-2025:** Implementation
	Indicator Wa 2.4: Skills related measures to protect climate vulnerable urban water sources identified and implemented (e.g. watershed reforestation training) **[ECO 2.2.1; ENV4.7.1]**	Partially. For development of education material and provision of training.	**2021:** Identify financial resources **2022:** Start developing education material **2023-2025:** Roll out training program
	Indicator Wa2.7: Proportion of urban household with access to climate-resilient natural water source in the six provinces **[ENV 4.2.1; ENV 4.2.2; ECO 2.2.1]**	Yes.	**2021:** Identify financial resources **2022**: Identify activities that ensure access to water

9. LOSS AND DAMAGE

The consideration of L&D within the project has provided useful insight into how discussions on its definition and reporting might be progressed in Vanuatu. While L&D remains a controversial topic, the workshop discussions provided a strong foundation to shape further consideration of how L&D might be considered within future NDC reporting.

9.1 Identified priority Loss and Damage considerations

The development of considerations for L&D drew on the relevant sections of Transparency Framework and the Katowice Climate Package. This was appropriate for three reasons:

- It gives the part on L&D in the NDC credibility through adhering to standards that have been negotiated and agreed to internationally provides weight to Vanuatu's L&D considerations
- Reporting will be coherent, both, from a national as well as international point of view
- It will help ensure that the L&D considerations are comparable within a reporting cycle in the Vanuatu context as well as with other country's reporting on L&D.

Alongside adaptation and mitigation, L&D will form part of the synthesis report that is developed by the Secretariat capturing all efforts and pledges made in each country's NDC. Including L&D in such a systematic manner and according to the guidance provided by the Enhances Transparency Framework in the Katowice Climate Package, will ensure a coherent section on L&D in the synthesis report.

The data for L&D considerations collected in both workshops provided insight into how L&D is understood in the relevant sectors, what actions could be undertaken to address L&D, and what assistance would need to be provided (see Table 12). Considering the novelty and complexity of the topic, the contributions of workshop progressed discussions on averting, minimising and addressing L&D from climate change impacts. However, the workshops revealed hesitation of some participants to identify certain L&D issues or develop associated indicators related to the water and agriculture sectors. Participants expressed concern that doing so would commit Vanuatu to actions to avert, minimise and address L&D in an international context.

Table 12 – Responses by stakeholders to L&D questions in Workshop 1

What is observed or potential L&D within your sector?	What are the current activities to avert, minimise and address L&D?	What are the institutional arrangements to facilitate action?	What assistance would be required?
1a) Damage to water infrastructure ***(potential and observed)*** 2a) Increased water fees and bills (potential and observed) 3a) Decline in quality of water ***(potential and observed)*** 4a) Increase in vector-borne diseases ***(potential and observed)*** 5a) Decline in water availability and access ***(potential and observed)*** 6a) Challenge in managing water protection zone due to population and development pressure ***(potential and observed)*** 7a) Displacement ***(potential)*** 8a) Water system security in terms of land disputes and other social issues ***(potential)*** 9a) Loss of cultural and ceremonial sites, example of ceremonial stones on the island of Tanna and inability to perform ceremonies, ***(observed)*** 10a) Unusual weather patterns that alter the harvest and sowing seasons ***(observed***) 11a) Salt water intrusion due to sea level rise ***(observed)***	1b) Re-instatement of water infrastructure after natural disasters (addressed) 2b) Government insurance policies in the water sector 3b) Consideration of displacement policy provisions 4b) Land use planning 5b) Rainwater harvesting/ water catchment during drought season 6b) Data collection on current and future L&D 7b) Consider including L&D in all water assessments, where applicable	1c) Prime Minister's Office 2c) PSC 3c) Asset Management Unit	1d) Definition of loss and damage 2d) (Local) capacity building on L&D 3d) Information sharing 4d) Funding (including compensation considerations) 5d) Technical expertise, data collection, land use planning 6d) Tools, guidelines and criteria for quantifying L&D in all sectors 7d) Gap in reporting on L&D caused by slow onset events

Based on responses, there are potential L&D considerations that that could be included in Vanuatu's NDC. These are outlined in Table 13. An indication is made where these considerations align with the relevant L&D section in the NCCDRR and would facilitate fulfilling Vanuatu's commitment under this policy.

Table 13 – Possible L&D considerations in Vanuatu's NDC based on participant responses

Loss and damage consideration	Alignment with NCCDRR policy and stakeholder response from workshop	Cost	Timeframe
Assign dedicated focal point for L&D for communication with the ExCom of the WIM, the Santiago Network and other regional and international Loss and Damage initiatives	NCCDRR action on advocating internationally and domestically for collaboration with the WIM	None	2021
Displacement Policy	NCCDRR **action on mainstreaming L&D in land and relocation policies and laws**	Through policy development program, external funding required	2021-2025: ensure that each new strategy considers L&D
Increase insurance cover	NCCDRR action on L&D implementation framework including insurance, risk sharing and compensation approaches	To be determined, external funding and capacity-building required	2021-2025, streamline with Ag2.11, Ag1.6, Ag2.6
Access the Santiago Network for Loss and Damage	NCCDRR action on advocating internationally and domestically for collaboration with the WIM	None	2021-2025: Raise awareness within departments of the existence of the clearinghouse
Access the Fiji Clearinghouse for Risk Transfer	NCCDRR action on advocating internationally and domestically for collaboration with the WIM NCCDRR action on L&D implementation framework including insurance, risk sharing and compensation approaches	None	2021-2025: Raise awareness within departments of the existence of the clearinghouse
Increase in water capture and storage (e.g. installation of additional water tanks and increase in catchment areas)	NCCDRR action on improving current infrastructure, taking climate change into account	External funding required	2021-2023: form part of indicator Wa1.3.
Inclusion of L&D in policies	NCCDRR Action on developing a L&D implementation framework	External funding required	2023-2025
Inclusion of L&D in vulnerability assessment frameworks	NCCDRR Action on conducting assessments on potential and actual L&D across the country linked with ongoing vulnerability assessment processes	None	2021-2025: form part of Ag2.7, 2.8, Wa1.1, Wa1.7 and Wa,2.7

The discussion presented above is based on engagement with water and agricultural sector specific stakeholders as part of the project. It is likely a broader range of stakeholders would raise a broader remit of L&D considerations, beyond those relevant to specific sectors. While the material here presents a starting point, the broader consultation with L&D related stakeholders would be advisable

in shaping how L&D considerations may be reported upon with the Vanuatu NDC. Out of workshop consultations highlighted a number of issues that would be worthy of consideration at such an event:

- **Data and information**. There is a need to improve the data collection on L&D, its analysis and monitoring, wherever possible in a gender-differentiated manner. This would require national capacity building to collect and analyse data in a systematic manner.
- **Anticipated research**. The Government of Vanuatu should outline current and future research needs and gaps. Gaps can refer to climate change impacts on biophysical systems and socio-economic systems, policy options or knowledge about the types and management of non-economic losses.
- **Capacity building**. There needs to be a focus on national capacity building in regards to disaster risk reduction and climate change adaptation on developing and using loss and damage assessment tools. Missing human and technical capacities when it comes to dealing with actual L&D need to be identified and expanded.
- **Technology**. Recognise the importance of technology in countries' ability to reduce, retain, and transfer climate risk to address loss and damage along with equitable access to technology and knowledge. Countries can highlight technological innovations they are undertaking to address L&D as well as outlining existing gaps. It would have a co-benefit of contributing to the work of the WIM and the Technology Executive Committee.
- **Institutional setup**. Review the suitability of existing institutions, the possibility for expanding their functions and mandate, where applicable; or if required, set up new institutions at the national and subnational levels for addressing L&D.
- **Policy development and integration**. Build on existing climate change policies and strategies to include L&D. Consider including these policies in the five-year national policy planning, as well as in the cross-sectoral planning processes.
- **Loss and Damage finance**. Articulate the scale of L&D finance needs which could include developing a dedicated fund for L&D from the national budget, expand innovative, pro-poor, people centred financial instruments and call for enhanced international support beyond adaptation, especially the provision of and access to finance.

9.2 Challenges for L&D and proposed pathway forward

The results of the workshops show that there is unanimous agreement amongst participants that L&D from climate change impacts is occurring and will continue to worsen. Vanuatu's enhanced NDC provides an opportunity to include L&D. As L&D differs from country to country, Vanuatu could consider including a definition for L&D in their NDC which is tailored to their national context. This might include expanding the already reported L&D by stakeholders and clearly outline the scale of the challenge.

There is scope for Vanuatu to showcase in their NDC what initiatives are already underway that avert, minimise and address L&D. These include policies such as the NCCDRR policy, on-the-ground projects and financing measures. Matters, for example, that were not outlined by participants were necessary climate information services, early warning, technology, capacity building and institutional strengthening. However, while these would be items that avert and minimise L&D, none of them refer to the important part of addressing L&D when it has occurred.

To develop concrete targets and indicators, there is the need to develop baselines in regards to avoided, unavoided and unavoidable L&D. This could be done parallel to the data collection for adaptation indicators. For example, avoided L&D may be what an adaptation project was able to prevent. Unavoided L&D would be what should have been able to be prevented through a project but was not. Reasons could be that the project was not implemented at all or it was not planned in a way that provided the best possible adaptation pathway. Unavoidable L&D is what is not covered under

the two categories identified before: it was neither able to be prevented nor should it have been able to be prevented. Data that is collected for the adaptation indicators should be collected in a way that reporting against these categories is possible.

The identification of finance for L&D remains a challenge, especially for those losses and damages that have already occurred. Insurance for L&D does exist in form of insurance pools, however, these only cover a fraction of the cost from the impacts. It is imperative that avenues are explored to have finance available for L&D. An initial focus could be on physical or economic L&D such as re-building of infrastructure and livelihood restoration, before moving on to finding ways to address non-economic L&D and issues such a relocation of communities.

Lastly, the literature (academic and grey) is expanding fast as academics, Think Tanks and NGOs are trying to find solutions for addressing L&D. It is recommended to follow these developments closely as the L&D discourse goes beyond mere quantification, indicators and targets. It touches on human rights, climate justice, non-economic L&D and liability from developed to developing nations which is out of scope for this consultancy.

10. CONCLUSION AND NEXT STEPS

This project has shown that Vanuatu's policies on a national level are quite comprehensive and well-considered. The most recent ones – such as the NSDP, NVAF and NCCDRR – are mostly streamlined and consistent. If subsequent policy development continues this way, this would pave the way for efficient and streamlined reporting, aligned with data availability. Some reporting mechanisms already exist and Vanuatu has demonstrated progress in reporting on the SDGs due to streamlining of the NSDGs with the international SDGs. More sophisticated and detailed M&E frameworks are in development, most notably for the NCCDRR policy and the NSDP. Almost all of Vanuatu's policies build on the three-pillared approach of environment, economy and society. This is also the case for small business and corporate plans. Data is not available for reporting on all indicators and targets that were developed as part of this project. In the future, it will be important to continue to build capacity for adaptation monitoring in all sectors, between actors and on multiple governance levels to be able to track set adaptation targets in the NDC. With this in mind, consideration should be given to the expansion of using GIS-based indicators for adaptation monitoring. This would not only help with the monitoring of the targets and indicators that were developed in this report but also aid with work that is ongoing in terms of vulnerability or post-disaster assessments.

It is important to note that no gender-distinction has been made in any of the targets and indicators, regardless of adaptation or L&D, that were developed for this assignment. It is recommended to add the intention of implementing projects that are gender-sensitive and respond to different needs as stipulated by the Paris Agreement when submitting the enhanced NDC. Consideration needs to be given to vulnerable groups such as the elderly and people with disabilities. For any future refinement of targets and indicators or expansion to other sectors, aspects of gender and vulnerable groups need to be taken into consideration.

The exercise on L&D has shown that the issue is of growing concern and observable in the agriculture and water sectors on an economic and non-economic level. Capacity building, awareness raising, information sharing and creating knowledge within Departments on a local and national level are of high priority. In achieving this, the dialogue with the international community and accessing the resources of the WIM in particular, is crucial. Measures related to communication and putting the right processes in place can be implemented at little to no cost. It is recommended to pursue, refine and build on the actions outlined in the NCCDRR policy as well as including them into the M&E framework and the implementation plan that is currently under development for this policy. The NCCDRR policy provides a sound basis to develop targets, indicators and concrete actions for L&D and monitor them through the M&E framework. Identified actions for L&D can have a conditional finance component which indicates that some measures are only achievable with external funding sources. In terms of L&D consideration, it is critical to have more research into L&D that is continuous. As L&D affects communities directly, research should focus on local issues "on the ground". As with the developed targets and indicators, meaningful gender distinctions need to be made and vulnerable groups considered.

In moving forward, the developed adaptation targets and indicators for the agriculture and water sector are a step towards submitting an enhanced and meaningful NDC to the UNFCCC. As with each NDC, they are a "work in progress". The selected priority targets and indicators for adaptation in the water and agriculture sectors should be pursued as data is already available and can be reported against. There are other sectors that are described as vulnerable to the impacts of climate change in Vanuatu, which in the NAPA process were identified, in order of priority, as a sustainable tourism sector and the fisheries and forestry sectors. Given the close linkage to food and income security, a priority should be given to the fisheries sector, then followed by tourism and forestry. Choosing to prioritise the fisheries sector over sustainable tourism would have the co-benefit of being prepared

for future pandemics due to the availability of independent domestic food sources. The fisheries sector could include an ocean component that looks at ocean acidification and decline in fish species. Consideration could be given, for example, to ecosystem- based adaptation approaches that are cost-effective and have many co-benefits. They are currently neglected as a possible option.
An approach similar to the one undertaken for this report could be expanded to these industry sectors. If the same methodology is followed – including aligning to already existing polices and frameworks such as the NVAF, NCCDRR policy and the NSDP – meaningful and achievable targets and indicators can be developed that are able to be incorporated into existing reporting processes and data gathering exercises.

Finally, the implementation of this project has identified a prioritised number of climate change adaptation indicators for agriculture and water sectors in Vanuatu, as well as progressed discussion on considerations of L&D in the Vanuatu context. An important next step will be for the Government of Vanuatu to take forward these prioritised indicators and further refine and validate them. In regards the proposed prioritised short list of indicators, this would include ensuring they align with the upcoming priorities of Vanuatu, and to review the resourcing and timing implications of them. For agriculture, it is important that the indicators are further validated with a broader range of stakeholders, noting the limitations outlined in the report. Similarly, the L&D considerations should be discussed with stakeholders interested in L&D and beyond the specific sectoral focus of agricultural and water.

ANNEX A – WORKSHOP PARTICIPANT LIST

First name	Last name	Organisation	22/10/2020	23/10/2020	5/11/2020	6/11/2020
Alice	**Iarem**	National Disaster Management Office				✓
Anne	**Pakoa**	ActionAid	✓	✓	✓	
Anne-Marie	**Roberts**	Department of Climate Change			✓	✓
Anna	**Bule**	Department of Strategic Planning and Aid Coordination	✓			
Christopher	**Sumptoh**	National Disaster Management Office				✓
Corey	**Huber**	Vanuatu Business Resilience Council/ Vanuatu Chamber of Commerce and Industry (VBRC/CCI)			✓	
Dan	**Tari**	Vanuatu Meteorological and Geo-disaster Department			✓	
Estonia	**Meltetake**	Vanuatu Meteorological and Geo-disaster Department			✓	
Florence	**Iautu**	Department of Climate Change	✓			
Freddy	**Hinge**	Department of Local Authorities			✓	✓
George	**Matariki**	Department of Water Resources		✓		
Harrison	**Morris**	University of South Pacific PACRES/ PACE-SD	✓			
Henry	**Kramuel**	Department of Climate Change	✓			
Ian	**Iercet**	Department of Energy	✓			
Jackson	**Tambe**	United Nations Development Program/ Department of Climate Change				✓
Jane	**Kaiapan**	Ministry of Climate Change Adaptation/Corporate Services Unit				✓
Jeff	**Malmangron**	Ministry of Lands and Natural Resources	✓	✓	✓	✓
Johnny	**Nimau**	Department of Climate Change		✓	✓	✓
Juliette	**Hakwa**	Department of Strategic Planning and Aid Coordination	✓			
June	**Brian-Molitaviti**	Department of Fisheries			✓	
Karlene	**Tevi**	Live and Learn	✓			
Kyla	**Niras**	National Disaster Management Office				✓
Leana	**William**	National Advisory Board on Climate Change and Disaster Risk Reduction	✓		✓	✓

Leisav	**Kalsev**	National Disaster Management Office				✓
Logange	**Yerta**	National Disaster Management Office				✓
Lulu	**Samson**	Department of Fisheries			✓	
Mary	**Iata**	National Disaster Management Office				✓
Mike	**Waiwai**	Department of Climate Change	✓			
Molu	**Bulu**	Department of Water Resources			✓	
Nasak	**Samantha**	National Disaster Management Office				✓
Neil	**Malosu**	Vanuatu Klaemet Infomesen blong Redy, Adapt mo Protekt project (Van-KIRAP)				✓
Nelson	**Kalo**	Department of Climate Change	✓		✓	✓
Nettie	**Joseph**	Department of Climate Change			✓	
Pauliane	**Basil**	Department of Climate Change	✓	✓	✓	✓
Samie	**Erie**	Department of Water Resources	✓	✓		
Samuel	**Luparus**	Department of Climate Change			✓	
Sele	**Humao**	Department of Climate Change			✓	
Stephanie	**Stephens**	Oxfam/Vanuatu Climate Action Network			✓	
Takau	**Steve**	National Disaster Management Office				✓
Tavlili	**Tony**	National Disaster Management Office				✓
Thomas	**Butu**	Department of Climate Change			✓	✓
Tony	**Kaltong**	Department of Finance and Treasury	✓			
Tunisha	**Naupa**	National Disaster Management Office				✓
Wycliff Jnr	**Bakeol**	Department of Strategic Planning and Aid Coordination	✓	✓		✓
Willy	**Missack**	Food and Agriculture Organisation		✓	✓	✓

ANNEX B – SCORES FOR INDICATORS IN THE AGRICULTURE SECTOR

The table below outlines the scores attributed to agricultural sector indicators. Those identified as important are highlighted in orange.

Number	Indicators	Urgency	Adaptation impact potential	Alignment with current frameworks, policies and processes	Usability, relevance and sustainability	Achievability and data availability	TOTAL SCORE
1	Indicator Ag1.1: Climate vulnerable agriculture SMEs and private sector operators for all six provinces mapped, using GIS as well as human-rights based, gender-sensitive and socially inclusive approaches and methods of assessment. [ENV 1.1.2; ENV 1.1.3; ENV 1.4.3]	1	1	0	0	4	6
2	Indicator Ag1.2: Natural resource related measures to strengthen agriculture SMEs and private sector operators in the six provinces identified and implemented (e.g., soil and land quality and access, stocks of climate resilience seedlings) [SOC 1.7.2]	1	2	0	2	3	8
3	Indicator Ag1.3: Infrastructure related measures to strengthen agriculture SMEs and private sector operators in the six provinces identified and implemented (e.g., inter-island freight; extension services, stocks of climate resilience biotechnology and equipment; [post-disaster] value chain support system). [ECO 3.4.1]	1	1	0	1	2	5
4	Indicator Ag1.4: Skills and training related measures to strengthen agriculture SMEs and private sector operators in the six provinces identified and implemented (e.g., climate and disaster resilient cropping training, produce market, value chain production, etc). [ENV 1.4.2; ENV 1.5.1]	4	5	5	5	4	23
5	Indicator Ag1.5: Institutional and governance related measures to strengthen agriculture SMEs and private sector operators in the six provinces identified and implemented (community decision-making, planning and action related to supporting	1	0	0	0	3	4

	agriculture SMEs at community, area, province level)						
6	Indicator Ag1.6: Financing related measures to strengthen agriculture SMEs and private sector operators in the six provinces identified and implemented (e.g. agriculture SME insurance cover)	1	2	0	2	2	7
7	Indicator Ag1.7: Proportion of agriculture SMEs and private sector operators in each of the six provinces operating in normal and (climate, disaster and environmentally) stressed times [ECO 3.4.2; ECO 4.2.1]	2	3	3	1	2	11
8	Indicator Ag1.8: Changes in the number of agriculture SMEs and private sector operators in the most vulnerable communities in each of the six provinces. [ENV 1.1.3; ECO 3.4.2]	1	0	0	0	2	3
9	Indicator Ag1.9: Proportion of men and women operating agriculture SMEs and private sector operators in each of the six provinces in normal and (climate, disaster and environmentally) stressed times. [ECO 3.4.2; ECO 4.2.1	1	1	2	2	2	8
10	Indicator Ag1.10: Turnover generated by agriculture SMEs and private sector operators, by gender and province in normal and (climate, disaster and environmentally) stressed times. [ENV 1.1.3]]	2	2	1	1	2	8
11	Indicator Ag1.11: Percentage of agriculture SMEs and private sector operators covered by crop and livestock insurance	4	4	2	4	2	16
12	Indicator Ag1.12: Proportion of agriculture SMEs and private sector operators in each of the six provinces operating on customary land in normal and (climate, disaster and environmentally) stressed times [ECO 3.4.2; ECO 4.2.1]	0	1	0	2	1	4

13	Indicator Ag1.13: Total number of agriculture-based rural producer cooperatives registered by province	0	0	0	0	2	2
14	Indicator Ag1.14: Proportion of primary, secondary and tertiary schools that teach climate resilient commercial agriculture.	2	3	2	3	3	13
15	Indicator Ag2.1: Climate vulnerabilities of subsistence agriculture for all six provinces mapped, using GIS as well as human-rights based, gender-sensitive and socially inclusive approaches and methods of assessment. [ENV 1.1.2; ENV 1.1.3; ENV 1.4.3]	5	5	5	5	4	24
16	Indicator Ag2.4: Skills and training related measures to strengthen subsistence agriculture in the six provinces identified and implemented (e.g. climate and disaster resilient cropping training, number of farms and/or level of crop harvest per farmer in normal and stress times). [ENV 1.4.2; ENV 1.5.1]	5	5	5	5	4	24
17	Indicator Ag2.5: Institutional and governance related measures to subsistence agriculture in the six provinces identified and implemented (community decision-making, planning and action related to supporting agriculture SMEs at community, area, province level)	1	0	0	1	4	6
18	Indicator Ag2.6: Finance related measures to strengthen subsistence agriculture in the six provinces identified and implemented (e.g. agriculture SME insurance)	2	2	2	0	2	8
19	Indicator Ag2.7: Proportion of subsistence gardens in each of the six provinces producing food in normal and (climate, disaster and environmentally) stressed times [ECO 3.4.2; ECO 4.2.1]	3	3	3	4	2	15
20	Indicator Ag2.8: Changes in the level subsistence agriculture harvests in the most vulnerable communities in each of the six provinces by cultivation area and individual crop performance.	3	5	4	4	2	18

	[ENV 1.1.3; ECO 3.4.2]						
21	Indicator Ag2.9: Proportion of men and women engaged in subsistence agriculture in each of the six provinces in normal and (climate, disaster and environmentally) stressed times. [ECO 3.4.2; ECO 4.2.1]	2	2	3	3	5	15
22	Indicator Ag2.10: Subsistence crop turnover generated by, by gender and province in normal and (climate, disaster and environmentally) stressed times. [ENV 1.1.3]	2	2	2	3	2	11
23	Indicator Ag2.11: Percentage of subsistence gardens covered by crop insurance [no reference to insurance in NSDP]	5	5	0	5	1	16
24	Indicator Ag2.12: Percentage of subsistence farmers in continuing to apply traditional knowledge and access planting materials for subsistence purposes. [SOC 1.2.2]	2	3	2	4	4	15
25	Indicator Ag2.13: Average incidence of food poverty at the household level post-disaster (Food Poverty Line) [ENV 1.1.3]	5	5	5	5	5	25
26	Indicator Ag2.14: Total number of primary, secondary and tertiary schools that teach climate resilient subsistent agriculture.	3	4	3	4	5	19
27	Indicator Ag2.15: Number of households with access to sustainable climate-smart quality food production sufficient for daily food consumption in normal and (climate, disaster and environmentally) stressed times. [ENV 1.1.1]	5	4	4	5	3	21

ANNEX C – SCORES FOR INDICATORS IN THE WATER SECTOR

The table below outlines the scores attributed to water sector indicators. Those identified as important are highlighted in blue.

Number	Indicators	Urgency	Adaptation impact potential	Alignment with current frameworks, policies and processes	Usability, relevance and sustainability	Achievability and data availability	TOTAL SCORE
1	Indicator Wa1.1: Water-climate vulnerable rural communities for all six provinces mapped, using GIS as well as human-rights based, gender-sensitive and socially inclusive approaches and methods of assessment. [ENV 4.2.2; ECO 2.2.1; SOC 4.1.1; SOC 4.1.2; SOC 4.4.2]	5	5	5	5	4	24
2	Indicator Wa 1.2: Natural resource related measures to addressing water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. protection of natural water sources; improved wastewater disposal; water quality) [ENV 4.2.1; ECO 2.2.1; ENV 3.4.1]	4	4	3	3	2	16
3	Indicator Wa 1.3: Infrastructure (including technology and services) related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. cyclone-proof tanks, water treatment, watsan technology for drought (scarcity) periods) [ECO 2.2.1; SOC 4.5.1; SOC 4.5.2]	5	5	5	5	3	23
4	Indicator Wa1.4: Skills related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. post-disaster water safety training) [ECO 2.2.1; ECO 2.2.2; SOC 4.1.3; SOC 4.4.1]	2	2	2	2	2	10

5	Indicator Wa1.5: Institutional and governance related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. community water governance; water efficiency measures; development, implementation and monitoring of community DWSSP) [ECO 2.2.1]	5	5	4	5	3	22
6	Indicator Wa1.6: Financing related measures to address water-climate vulnerability of rural communities in the six provinces identified and implemented (e.g. community water system insurance cover) [ECO 2.2.1; SOC 6.5.1; SOC 6.8.1; ENV3.3.1]	3	3	2	2	2	12
7	Indicator Wa 1.7: Proportion of water-climate vulnerable rural communities with adequate access to water supply in normal and (climate, disaster and environmentally) stressed times [ENV 4.2.1; ECO 2.2.1]	5	5	5	5	3	23
8	Indicator Wa1.8: Proportion of men and women with adequate access to water in each of the six provinces in normal and (climate, disaster and environmentally) stressed times. [ECO 3.4.2; ECO 4.2.1]	5	5	5	5	3	23
9	Indicator Wa1.9: Percentage of water-climate vulnerable rural communities in the six provinces covered by water insurance	5	5	3	3	1	17
10	Indicator Wa1.10: Number of water-climate vulnerable rural communities with at least 5 individuals who have been trained on climate-resilient water management.	3	5	3	4	3	18
11	Indicator Wa2.1: Climate-resilient natural water sources for urban water supply needs identified and mapped using GIS [ENV 4.2.1; ENV 4.2.2]	5	5	5	5	5	25
12	Indicator Wa 2.2: Natural resource related measures to protect climate vulnerable urban water sources identified and implemented (e.g. reforestation of watershed) [ECO 2.2.1; ENV4.3.1; ENV4.6.1; ENV4.6.2]	5	5	5	5	5	25

13	Indicator Wa 2.3: Infrastructure (including technology and services) related measures to protect climate vulnerable urban water sources identified and implemented (e.g. fencing of water source) [ECO 2.2.1]	5	5	5	5	4	24
14	Indicator Wa 2.4: Skills related measures to protect climate vulnerable urban water sources identified and implemented (e.g. watershed reforestation training) [ECO 2.2.1; ENV4.7.1]	4	4	3	3	3	17
15	Indicator Wa 2.5: Institutional and governance related measures to protect climate vulnerable urban water sources identified and implemented (e.g. legislating projection of watershed) [ECO 2.2.1]	5	5	3	4	4	21
16	Indicator Wa 2.6: Financing related measures to protect climate vulnerable urban water sources identified and implemented (e.g. reforestation of watershed) [ECO 2.2.1]	2	2	2	2	2	10
17	Indicator Wa2.7: Proportion of urban household with access to climate-resilient natural water source in the six provinces [ENV 4.2.1; ENV 4.2.2; ECO 2.2.1]	5	5	3	4	3	20
18	Indicator Wa2.8: Percentage of water-climate vulnerable urban communities in the six provinces covered by water insurance [ENV 4.2.1; ECO 2.2.1]	2	3	2	4	2	13

The Regional Pacific NDC Hub is implemented in partnership with:

In contribution to:

With financial support from: