GLOBAL ALLIANCE FOR THE FUTURE OF FOOD

UNTAPPED OPPORTUNITIES FOR CLIMATE ACTION

An assessment of food systems in Nationally Determined Contributions

COUNTRY ASSESSMENT

VANUATU

GLOBAL ALLIANCE FOR THE FUTURE OF FOOD

2022

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PREFACE

Integrating food systems transformation into the Nationally Determined Contributions (NDCs) – the national climate actions at the heart of the Paris Agreement, is critical to delivering on interconnected ecological, biodiversity, health, economic, social, and cultural goals. Taking a food systems approach builds climate resilience and results in a diversity of context-specific solutions for food production, distribution, consumption, and waste. Yet, food systems are rarely prioritized in climate policy.

This country assessment is part of a suite of publications that are designed to centre food systems transformation in future climate policy:

1. Untapped Opportunities for Climate Action: An Assessment of Food Systems in Nationally Determined Contributions: A summary report providing a synthesis of the 14 country assessments with recommendations and priority actions for policymakers and climate policy advisors
2. A Practical Guide to Assessing Food Systems in Nationally Determined Contributions (NDCs): A guide with a framework designed to enable users to take a food systems approach to developing future NDCs and implementing climate policies.
3. A set of 14 country assessments examining the latest NDCs of 14 countries from around the world, outlining areas of improvement and opportunity.

Users are also encouraged to read Confronting the Climate Crisis with Food Systems Transformation: Stories of Action from 14 Countries, which provides a catalogue of global case studies that complement the suite of materials for policymakers, advisors, and advocates of climate action.

OVERVIEW OF VANUATU'S FOOD SYSTEMS

Food and agriculture sectors are central to Vanuatu's economy. In 2017, agriculture employed as much as 56% of the country's population[1] and accounted for 20% of the gross domestic product (GDP).[2] In fact, agriculture and livestock are two of the four mainstays of Vanuatu's economy, in addition to tourism and offshore financial services.[3]

Vanuatu has a strong tradition in subsistence farming and fishing. More than 80% of the population relies on agriculture for food and income security, and over 75% of agricultural production in Vanuatu is for subsistence purposes.[4] Subsistence farming is mainly centred around root crops, including taro, yam, cassava, and sweet potato.[5] In addition, approximately half of rural households hold cattle — corresponding to roughly 15,500 smallholder cattle farmers owning an average of 5 cows each.[6] While comparatively small, fisheries are also key to Vanuatu's economy, and around half of all households engage in fishing.[7] The majority of these fisheries are for subsistence and local markets — with approximately 80% of consumed protein coming from marine foods in some regions — and contribute little to national GDP.[8] As a result of its subsistence farming and fishing, Vanuatu is mostly self-sufficient in its food production.[9, 10] However, food imports are still made, with rice, bread, and meat being the most frequently imported foodstuffs.[11] In 2019, Vanuatu imported 8,070 million Vanuatu vatu (VUV) (71 million USD)* in foodstuff, approximately 27% of total imports.[12]

Commercial farming in Vanuatu is small-scale and mainly concentrated around urban areas but contributes significantly to national exports. Commercial farming is dominant around urban areas due to high demand for food from a growing urban population (currently comprising 26% of Vanuatu's total population)[13], a large tourism industry within the cities, and proximity to international markets.[14] Commercial farming activities are mostly focused on local island cabbages, Chinese cabbage, capsicum, eggplants, spices, and herbs. In turn, commercial livestock production is largely focused on beef, with 35 commercial cattle farms supplying the majority of the formal domestic market and generating exports.[15] Agricultural exports constitute more than 75% of national exports, with coconut oil being the second-largest contributor to foreign trade.[16, 17] Other important exports include fish products, cocoa, kava, beef, and coffee.[18, 19]

The agricultural sector is the largest emitter of greenhouse gases (GHGs) in Vanuatu. Due to the importance of subsistence farming for Vanuatu, agriculture, forestry, and other land uses are the biggest emitters of GHGs, responsible for as much as 73% of the country's total GHG emissions in 2015.[20] It is important to note, however, that Vanuatu's contributions to climate change are negligible, with absolute emissions at less than 0.0016% of world emissions.[21]

Vanuatu is ranked as the most vulnerable country in the world with regard to natural hazards, which form an ongoing risk for food production and nutritional security.[22] While Vanuatu is prone to volcanic eruptions, earthquakes, and tsunamis, the country's latitude makes it especially vulnerable to tropical cyclones and increases the risk of droughts and flooding.[23] The island country experiences severe cyclones every 3 to 5 years,[24] the most recent of which destroyed 90% of subsistence crops and resulted in an economic loss equivalent to 50% of GDP in 2015.[25]

* Conversions based on February 2, 2022, exchange rates.

The prospect of climate change will further exacerbate the intensity of natural disasters and their impacts and gives rise to additional risks. First and foremost, loss of land to the ocean due to sea level rise is an existential threat to the island nation, where some coastal communities are already facing inundation due to high tides and have begun relocating.[26, 27] Rising sea temperatures and ocean acidification will also put pressure on important coastal ecosystems, which are vital for adequate food provision. Climate change is affecting seasonality in Vanuatu, putting additional stresses on crop production. Saltwater intrusion due to rising sea levels may further render aquifers useless, with adverse impacts on agricultural production.[28] Most worryingly, temperature increases may surpass the maximum heat tolerance threshold for Vanuatu's traditional crops, disrupting the national food system.[29] Additional threats to food production and food security may follow from unsustainable land-use practices. Slash-and-burn land-clearing methods, for instance, are a common practice, leading to increased soil erosion and deforestation.[30]

Vanuatu faces the double burden of malnutrition. According to a 2011 survey, 62% of adults in Vanuatu do not adhere to diets that follow recommended guidelines.[31] Obesity as a consequence of malnutrition has increased rapidly over the last decades; by 2019, almost two-thirds of the country's population was either obese or overweight. This has led to increased rates of cardiovascular diseases and diabetes, which are responsible for an estimated 74% of all deaths in Vanuatu.[32] Simultaneously, approximately 16 and 20% of the population are underweight or stunted, respectively. The incidence of malnutrition is strongly differentiated between urban and rural regions. While Vanuatu's capital, Port Vila, has the highest incidence of obesity, stunting is particularly high among children in rural areas. The former can be explained by the relative unavailability of arable land in urban areas — indeed, 30% of urban households do not have access to land for subsistence farming, with most plots dedicated to commercial agriculture — which limits access to healthy food.[33] In addition, urban food prices are higher than in rural areas, while urban households must also contend with higher prices for other basic necessities. [34] As a result, rural households are seven times more likely than their urban counterparts to consume local foods as part of their daily diets.[35] In turn, malnutrition in rural areas is likely the result of rural poverty and limited finance for purchasing healthy and nutritious food to complement subsistence diets.[36] In addition, the growing availability of cheap imported foods, such as sweetened beverages, bakery products, ice cream, and other processed and packaged foods, contribute to poor diets in both urban and rural areas.[37]

Vanuatu's food systems offer valuable opportunities for addressing the country's climate change and malnutrition challenges. By systematically considering where vulnerabilities and opportunities lie, policymakers can develop measures to catalyze a transition to healthier and more sustainable food systems in Vanuatu, which can simultaneously contribute to increasing social resilience, climate change adaptation, and economic development.

NDC STATUS

Vanuatu submitted an updated version of its first NDC to the United Nations Framework Convention on Climate Change (UNFCCC) in March 2021. The submission is accompanied by a separate report titled "Vanuatu's Enhanced Nationally Determined Contributions (NDC) 2020–2030: Enhancing and Fast-tracking Implementation of Vanuatu's Nationally Determined Contribution (NDC)."[38] The report presents the country's national circumstances, its long-term vision for climate change, an assessment of the country's emissions profile, an assessment of the mitigation potential of different sectors, an overview of identified mitigation measures, a discussion of Vanuatu's monitoring, reporting, and verification (MRV) system, and the means of implementation for the NDC. In addition, an Implementation Roadmap was published in 2019.

The NDC includes both mitigation and adaptation targets set to be achieved by 2030. Vanuatu highlights in its NDC that, while its own contribution to global GHG emissions has been negligible, the country is nevertheless fully committed to implementing the Paris Agreement. The NDC also calls upon other parties to increase ambition for achieving a 1.5°C warming limit.

The following assessment was conducted between March and September 2021, and is largely based on the NDC, with additional information from the aforementioned report and Implementation Roadmap, as well as interviews with six key stakeholders.

KEY FINDINGS

NDC DEVELOPMENT PROCESS

TABLE 1: NDC DEVELOPMENT: KEY FINDINGS AT A GLANCE

Key findings	Areas for improvement
• The Nationally Determined Contribution (NDC) development process was led by Vanuatu's Department of Climate Change (DoCC) and was supported by the United Nations Development Programme's (UNDP) NDC Support Program. • The NDC development process included multiple rounds of consultation with diverse stakeholder groups. • Gender equality and the inclusion of marginalized groups were integral to the NDC development process.	• Make the NDC development process more widely accessible for stakeholders who are not personally invited to consultations. • Enhance evidence-based decision-making to ensure that NDC targets and measures take account of food systems synergies and avoid negative externalities.

The NDC development process was led by Vanuatu's Department of Climate Change (DoCC) and was supported by the United Nations Development Programme's (UNDP) NDC Support Program. The DoCC led the process under the guidance of the Ministry of Climate Change Adaptation, Meteorology, Geo-hazards, Energy, Environment and Disaster Management (MoCC). Stakeholders were engaged across all ministries and departments, most importantly the Department of Environmental Protection and Conservation, the Department of Forests, the Department of Fisheries, the Department of Livestock, and the Department of Women's Affairs.[39] The NDC was further reviewed and endorsed by the National Advisory Board on Climate Change & Disaster Risk Reduction (NAB). The NAB is the supreme policy-making and advisory body for all climate change– and disaster risk–related programs and activities in Vanuatu. The NAB includes government representatives and members of NGOs, such as the Vanuatu Humanitarian Team Network, the Vanuatu Climate Adaptation Network, and the Vanuatu Association of Non-governmental Associations. In addition, the NDC was developed with technical support of the UNDP's NDC Support Programme, which assists developing countries in designing and implementing coherent NDCs. This technical support was provided through an external consulting firm and included support to high-level leaders to build consensus as well as support for the update of the NDC, the development of the NDC Implementation Roadmap, the development of an MRV tool, and the implementation of the NDC through Sustainable Energy Projects.[40]

The NDC development process included multiple rounds of consultation with diverse stakeholder groups. The NDC specifies that it has been developed through an inclusive and participatory process. The

development process included public consultations that engaged with the private sector, NGOs, academia, development partners, and marginalized groups. The NDC notes that, while sub-national consultations were considered, these were not feasible due to the pandemic. Beyond this, the NDC does not specify the level and significance of participation by the aforementioned stakeholders. Interviews indicate that participation in the consultation process was through invitation by the MoCC.[41] The consultation consisted of multiple rounds, starting with one-on-one meetings where specific stakeholder groups could provide input to the development process, which were then followed by collective meetings and workshops with all stakeholders.[42] Moreover, the external consultant who provided technical support and led the drafting of the NDC also hosted in-person meetings with local stakeholders to present a draft version of the NDC, elicit further feedback, and ultimately foster broad support for the NDC.[43, 44]

Gender equality and the inclusion of marginalized groups were integral to the NDC development process. Beyond the participation of representatives of marginalized groups and women in the national consultation process, the gender expert of the DoCC was involved during the NDC development to review the plans and targets in light of gender-responsiveness.

AREAS FOR IMPROVEMENT

Make the NDC development process more widely accessible. As participation in the NDC process was only by invitation, it is possible that certain valuable insights may have been missed. For example, the fact that fisheries were not included in NDC measures may have been an indirect consequence of the focus on agriculture and farmers during the consultation sessions.[45] Thus the current active recruitment strategy can be complemented by open surveys and broad calls-for-input to ensure that the NDC development process is accessible to all who wish to share their insights. Future consultations should also focus on the sub-national level, which was not feasible for the updated NDC due to the pandemic. Local consultations could follow a similar approach to the development of the People's Plan, where over 1,500 Ni-Vanuatu were consulted across the country's 65 inhabited islands over a 3-year period.[46]

Improve evidence-based decision-making to ensure that NDC targets and measures take account of food system synergies and avoid negative externalities. Given the diversity of Vanuatu, a good evidence base is crucial for informing food systems and climate change policy.[47] While certain crops may grow well on one island, they may be less suitable to the environments of another island. Similarly, the impacts of climate change — which include sea level rise, saltwater intrusion, and higher incidence of flooding — will likely manifest differently on different islands. Thus high-resolution climate information services and long-term weather projections are crucial for developing policies that are responsive to the needs of both subsistence and commercial farmers, as well as fishers and other food systems actors.[48] In addition, evidence related to the costs and benefits of transitioning to healthier and more sustainable food systems — including positive externalities around improved nutrition and reduced food loss and waste — could further support policymakers in developing evidence-based policy and maintaining policy coherence. It is crucial that such scientific information is complemented by traditional knowledge.[49] Evidence-based decision-making is particularly important in the context of loss and damage, as limited data availability hampers policy development in this field.[50]

CONTENT OF THE NDC

TABLE 2: NDC CONTENT: KEY FINDINGS AT A GLANCE

Key findings

- There is some degree of policy coherence between the NDC and existing national policies, such as the National Sustainable Development Plan, the Climate Change and Disaster Risk Reduction (CCDRR) policy, and Vanuatu's vulnerability assessment framework.
- While the overall focus of Vanuatu's NDC is on mitigation, the NDC considered food systems largely from an adaptation perspective.
- The indicators that underpin the NDC's agricultural adaptation targets suggest that a food systems approach may have been used to develop these targets.
- The NDC includes three mitigation measures that relate to livestock, including a measure to promote regenerative approaches for livestock management.
- The NDC includes a target to compost municipal organic waste to produce soil enhancer and a target to install biogas plants.
- The NDC includes the commitment to maintain Vanuatu's forest cover in the future.
- The NDC emphasizes that women will suffer no disproportional impacts as a consequence of its targets and measures.

Areas for improvement

- Improve policy coherence to address health and climate challenges in an integrated manner.
- Expand current targets for food security to cover all aspects of food security — including the availability, accessibility, utility, and stability of food supply — as well as nutritional security.
- Include measures to reduce food loss and waste through improved food storage and food distribution facilities; for example, through solar-powered refrigeration.
- Include measures to adapt to and mitigate climate change through Vanuatu's fisheries.
- Include measures and targets that incentivize conservation practices in agriculture, forestry, and marine ecosystems.
- Include commitments made in the context of the Global Methane Pledge and the Glasgow Leaders' Declaration on Forests.

There is some degree of policy coherence between the NDC and existing national policies. First and foremost, Vanuatu's NDC is based on a national vision of "a stable, sustainable and prosperous Vanuatu," as put forward in the National Sustainable Development Plan,[51] the so-called People's Plan. Similarly, the NDC's agricultural targets are linked to targets and plans established under the People's Plan. More broadly, the NDC development process appears to have taken account of existing policies such as the Climate Change and Disaster Risk Reduction (CCDRR) policy and the National Energy Roadmap (NERM) — as the NDC includes numerous mentions of alignment between these existing policies and the NDC targets and measures.

Importantly, the country's vulnerability assessment framework[52] was instrumental for the development of the adaptation goals, targets, and indicators included in the NDC.[53] Interviewees do indicate, however, that there is further scope to improve policy coherence, particularly for food systems policies.[54]

While the overall focus of Vanuatu's NDC is on mitigation, the NDC considered food systems largely from an adaptation perspective. With the exception of the livestock farming measure discussed below, food production is not considered from a mitigation perspective in the NDC, mainly because Vanuatu's contribution to global GHG emissions is close to zero.[55] The NDC does, however, include adaptation targets related to securing livelihoods and supporting food, water, and income security, although most adaptation measures will be included in the forthcoming National Adaptation Plan. Specifically, the NDC includes a goal to ensure that agriculture remains capable of supporting household income and food security by 2030. This goal is further separated into two distinct targets, which are both underpinned by process- and outcome-based indicators. First, by 2022, 80% of agriculture small and medium enterprises (SMEs) and private sector operators are able to generate sufficient income to cover the essential household needs and services of their employees. Second, by 2030, all identified measures for enhancing the resilience of subsistence agriculture in a changing climate have been implemented. Currently, the government is in the process of identifying the most feasible and effective measures to reach the aforementioned goal and targets.[56]

The indicators that underpin the agricultural adaptation targets suggest that a food systems approach may have been used to develop these targets. The agricultural adaptation targets are underpinned by process- and outcome-based indicators. The process-based indicators consider, among others, the use of community decision-making, planning, and action related to agricultural activities as well as investments in infrastructure to strengthen commercial and subsistence agriculture. In turn, the outcome-based indicators cover, among others, the proportion of men and women engaged in commercial and subsistence agriculture as well as the percentage of subsistence farmers that continue to apply traditional knowledge.

The NDC includes three mitigation measures that relate to livestock, including a measure to promote regenerative approaches for livestock management. More concretely, the NDC aims to convert current livestock pastures in Vanuatu into silvopastoral livestock systems by 2030. Silvopastoralism is a form of livestock management and agroforestry that focuses on the integration of ecosystems and the promotion of ecologically beneficial interactions.[57] Silvopastoralism was included as a livestock measure over other more technocratic approaches, as the livestock sector in Vanuatu is not very concentrated and cattle typically roam free across large expanses of land.[58] Additional livestock measures put forward in the NDC include training and capacity-building for livestock farming, as well as international collaboration to improve livestock efficiency.

The NDC includes a target to compost municipal organic waste to produce soil enhancers and a target to install biogas plants. The first target involves setting up a composting plant for municipal organic waste by 2030. The second target involves installing 1,000 biogas plants by 2030 to convert residential and commercial (food) waste into biogas. Biogas plants to convert kitchen and livestock waste into biofuels have already been built for two premier boarding schools in Vanuatu.[59] As agricultural production in Vanuatu produces high amounts of waste, it is expected that such systems can be expanded further over the

coming years, which will require trained personnel.[60] These targets are aligned with Vanuatu's previous goal to compost 60% of organic waste by 2020, as included in the country's National Waste Management and Pollution Control Strategy and Implementation Plan 2016–2020. An updated version of this plan will be published later this year.[61]

While the NDC refers to the forestry sector, it does not include concrete measures to mitigate climate change through forests. Vanuatu's forests are a net carbon sink, and sustainable logging is practised throughout the country. The NDC therefore includes a commitment to maintain the country's forest cover in the future. Notwithstanding, forests are not covered by the NDC's mitigation targets, and no concrete measures on forests are put forward in the NDC. Instead, the NDC states that Vanuatu will develop and pursue forest mitigation measures under the national REDD+ program, with the potential to include these measures in future updates of the NDC.

The NDC emphasizes that women will suffer no disproportional impacts as a consequence of its targets and measures. It states that none of the actions under the NDC will negatively impact gender equality and women's rights, or limit women's access to or control over natural resources and the goods and services covered under the NDC. More concretely, two of the process-based agricultural adaptation indicators refer to gender-sensitive assessment methods, while two of the outcome-based indicators are disaggregated by gender. Furthermore, interviews indicate that all projects and programs that will be implemented under the NDC will be preceded by a gender assessment and an evaluation of the role and impact on marginalized groups, and that all NDC measures will be linked to a gender expert.[62]

AREAS FOR IMPROVEMENT

Improve policy coherence to address health and climate challenges in an integrated manner. While there is some alignment between the NDC and other national policies, there is further scope to improve policy coherence, particularly to align food systems policies across health and climate challenges.[63, 64] For example, there are many opportunities to better link adaptation to climate change with nutrition co-benefits. The Gudfala Kaikai Policy — developed by the Ministry of Agriculture, Livestock, Fisheries, Forestry and Biosecurity to increase the production of healthy, locally grown food in an effort to address non-communicable diseases[65] — already links food production with healthy diets, and further links can be made to climate change adaptation by also including efforts to increase resilience. Vanuatu's National Nutrition Policy and Strategic Plan runs from 2016 to 2020, and it is unclear whether a new Nutrition Policy and Strategic Plan is being developed for the period after 2020.[66] This is an important gap to fill and also provides a valuable opportunity to develop linkages between food security, nutritional security, and climate change adaptation. Considering the limited resources and the lack of economies of scale that Vanuatu faces as a small island state, policy coherence and institutional collaboration will be central to safeguarding food and nutritional security in the wake of a changing climate.[67]

Expand current targets for food security to also cover all aspects of food security — including the availability, accessibility, utility, and stability of food supply — as well as nutrition security. The current understanding of food security in the NDC is linked to adaptation efforts and is arguably limited to ensuring adequate food production. More specifically, the NDC targets focus predominantly on the availability

and stability of food supply. The NDC does not consider nutrition security, which goes beyond food security, and also considers the nutritional value of food, care and feeding practices, as well as sanitation and health.[68] It is therefore important that the food security targets included in the NDC are broadened — or additional targets could be developed — to not only ensure adequate food production, but also ensure diversification of produced foodstuffs and promote healthy diets. This would not necessarily alter the overall objective that is set for agriculture, but rather expand the scope of required actions such that the issue of improving health and diets in Vanuatu is also addressed.

Include measures to reduce food loss and waste through improved food storage and food distribution facilities. Vanuatu's food sector is one of the economic sectors that is responsible for the most material throughput in the country.[69] Notwithstanding, the NDC does not include efforts to reduce food loss and waste, although efforts are included to repurpose this waste. This is a missed opportunity, as measures for reducing food loss and waste can have many co-benefits at both the commercial and residential level.[70] In turn, food distribution is especially relevant in Vanuatu, considering the logistical challenges related to distributing food across 65 inhabited islands. Investments in strengthening and extending the country's food storage capacities can provide resilience in the wake of natural disasters while preventing the loss of valuable food supplies during these events.[71, 72] In addition, improved food storage and distribution capacities can result in decreased food loss and higher profits for commercial farmers, as farmers currently lose large proportions of their harvests during boat and truck transport.[73] Improved storage capacities would also be beneficial for subsistence farmers, as this would reduce food loss and thereby increase the volume of food available for household consumption. Another advantage of better storage capacities is that they increase the accessibility and consistency in availability of seasonal foods,[74] which is important for farmers who wish to access international markets and may become increasingly relevant as climatic patterns change and growing seasons become less predictable.[75] Solar-powered refrigeration offers a valuable opportunity in this regard, with some schools and agricultural cooperatives already purchasing such systems with government support.[76, 77] These and similar measures can be included in subsequent updates of the NDC.

Include measures to adapt to and mitigate climate change through Vanuatu's fisheries. While fisheries have not been included in the current NDC, they represent an important opportunity to raise climate ambition in coming years.[78] In fact, the NDC includes an intention to consider other sectors that are "in the next order of priority," such as fisheries, in future reviews. This would align well with Vanuatu's ambition to develop a blue economy — that is, economic activities that are based on the sustainable use of coastal and marine resources.[79] Supporting Vanuatu's fisheries to adapt to climate change is central to food security. This can be done through climate information services and capacity-building efforts. In terms of mitigation, there are opportunities to reduce food loss in the country's fisheries; for example, through minimizing waste from fish processing or using this waste to produce new products such as nitrogen fertilizer or fashion accessories from fish skins. Such mitigation measures would also have adaptation co-benefits; for example, by reducing pressures on vulnerable fisheries.[80]

Include measures and targets that incentivize conservation practices. While conservation in agriculture is currently only pursued through measures targeting livestock, more conservation practices could be included for agriculture as well as marine ecosystems that provide fisheries and other important

resources. For agriculture, this could include measures to discourage the use of slash-and-burn practices; for example, through more sustainable fertilization practices using organic inputs, which would reduce deforestation, address soil erosion challenges, and conserve biodiversity.[81] For forests, actions and measures being developed under the national REDD+ Programme could be integrated into the NDC in the future, which is already being considered. Similarly, marine conservation efforts could include mangrove protection and rehabilitation, which, in addition to supporting food security, also offers climatic benefits in the form of blue carbon and coastal resilience.[82, 83]

Integrate the commitments made in the context of the Global Methane Pledge and the Glasgow Leaders' Declaration on Forests and Land Use. Vanuatu endorsed key pledges and initiatives that were announced during COP26 in Glasgow (but outside the official UNFCCC regime). These pledges, if fully and adequately implemented, have the potential to accelerate Vanuatu's shift toward sustainable food systems, in particular through measures that further promote regenerative agricultural practices and protect natural (terrestrial and marine) ecosystems. But to ensure progress, transparency, and accountability, it is crucial that these international commitments and respective actions be fully integrated and anchored in Vanuatu's NDC.

IMPLEMENTATION OF THE NDC

TABLE 3: NDC IMPLEMENTATION: KEY FINDINGS AT A GLANCE

Key findings

- The NDC maintains that its implementation will be inclusive, reflecting close coordination among all ministries and governmental departments, as well as participation by the private sector, NGOs, development partners, women, and marginalized groups.
- An Implementation Roadmap was published in 2019 to support the implementation of Vanuatu's first NDC, which is expected to be updated soon.
- The NDC considers vehicles to unlock private and multilateral investment for its implementation.
- The NDC includes a monitoring, reporting, and verification (MRV) system to track progress in implementing measures for all sectors covered under the NDC but is most comprehensive for the energy sector.

Areas for improvement

- Develop the MRV tool further to adequately track progress on food and agricultural targets, using a food systems perspective.
- Ascribe more specific roles to women, subsistence farmers, youth, and other marginalized groups in the implementation of the NDC.
- Develop policies and measures to unlock private, philanthropic, and multilateral investment in sustainable food systems that focus on capacity-building, disaster risk management, and addressing bottlenecks for private sector actors.

The NDC maintains that its implementation will be inclusive, reflecting close coordination among all ministries and governmental departments, as well as participation by the private sector, NGOs, development partners, women, and marginalized groups. The primary actors involved in the implementation of the NDC are the DoCC, the Ministry of Infrastructure and Public Utilities, the Ministry of Education, the Ministry of Health, the Ministry of Finance, the Department of Energy, and the Department of the Environment. Furthermore, private sector actors, NGOs, and development partners are expected to play an active role in implementing projects and programs that are part of the NDC. Additionally, the NDC maintains that opportunities will be provided for women and marginalized groups to play an active role in its implementation. However, the NDC does not specify the exact roles or opportunities for any stakeholder other than the government.

An Implementation Roadmap was published in 2019 to support the implementation of Vanuatu's first NDC, which is expected to be updated shortly. The Implementation Roadmap provides a pathway for the implementation of specific mitigation measures in Vanuatu, paying particular attention to efforts to

meet the target of 100% renewable energy put forward in the first (pre-update) NDC. As the Roadmap focuses largely on the energy sector and the renewable energy target, it does not detail any specific roles for food systems actors. The Roadmap notes that it is a living document, to be updated when more information on other opportunities becomes available. An updated version of the Roadmap is expected to be published soon in light of the recently updated NDC submission.[84]

The NDC considers vehicles to unlock private and multilateral investment for its implementation. For example, finance to strengthen subsistence agriculture is included as a process-based indicator for the NDC's agricultural adaptation targets. Furthermore, the NDC includes several conditional measures for which it is anticipating financial, technological, and capacity-building support by global funds such as the Green Climate Fund, the Global Environmental Facility, and the Least Developed Countries Fund. Overall, the NDC mentions that achieving its conditional mitigation targets is expected to cost approximately 19,778 million VUV (174 million USD). As part of its fundraising efforts, the Department of Foreign Affairs mainly engages with potential donors and funders during the annual United Nations Climate Change Conferences, pitching their portfolio of adaptation and mitigation programs and projects that could benefit from external funding.[85] In this regard, a key fundraising need of Vanuatu is addressing loss and damage, which includes building the resilience of the country's food systems to climatic disasters.[86] Currently, Vanuatu receives external funding for the development of its NDC through the UNDP NDC Support Programme.[87] In addition, Vanuatu accesses support through the Regional Pacific NDC Hub, which is largely resourced by the German Agency for International Cooperation (GIZ), Australia, and New Zealand, in partnership with other agencies such as the Global Green Growth Institute (GGGI), Pacific Community, and the Secretariat of the Pacific Regional Environment Program (SPREP).[88] There are indications of further forthcoming support, mainly in the form of external feasibility studies.[89] Vanuatu is also considering financing options under Article 6 of the Paris Agreement.[90]

The NDC includes a monitoring, reporting, and verification (MRV) system to track progress in implementing measures for all sectors covered under the NDC but is most comprehensive for the energy sector. The MRV tool considers data from the national GHG inventory, as well as data on mitigation and adaptation actions, climate finance, and progress on implementing the Sustainable Development Goals (SDGs). Data collection is done through a cloud system that includes a user-management portal such that all relevant stakeholders involved in the implementation of climate change–related activities can participate in MRV. While the MRV covers all sectors, it is the most comprehensive and detailed for the energy sector, for which it was initially developed under the Intended Nationally Determined Contribution (INDC).[91] Particularly for agriculture and food production, the tool is less coherent and needs to be substantiated and linked to other sectors.[92]

AREAS FOR IMPROVEMENT

Develop the MRV tool further to adequately track progress on food and agricultural targets, using a food systems perspective. While the current MRV system is comprehensive in its treatment of the energy sector, the system needs to be further substantiated for other sectors, especially food and agriculture. The NDC already offers a solid foundation for doing so, as the agricultural adaptation targets are accompanied by a broad set of indicators. There are also opportunities to add additional indicators or elaborate on existing indicators; for example, by considering nutritional security. The MRV system should also

capture loss and damage related to climate change — with impacts on food production and distribution being especially relevant from a food systems perspective — for which there is currently limited data available and data-collection capacities are similarly limited.[93] Furthermore, while the current tool allows for data inputs of relevant stakeholders, it is important to ensure accessibility such that local farmers and communities can also provide information on NDC implementation and development, which may require capacity-building as elaborated on below.[94]

Ascribe more specific roles to women, subsistence farmers, youth, and other marginalized groups in the implementation of the NDC. While the NDC maintains that women and marginalized groups will be provided with opportunities to participate in the implementation of the NDC, no particular roles or tasks are assigned to these groups in the remainder of the NDC document. As such, for true participation, it is important to translate this ambition into action; for instance, by empowering women and subsistence farmers to coordinate local programs or projects that are part of the NDC. For example, women, youth, and farmers could collect data and input from local communities that could inform progress on implementation. Private sector participation is similarly key, especially considering the limited economies of scale on the small island state.[95] Such roles can be detailed in an update of the Implementation Roadmap, which should also cover the new adaptation and mitigation measures included in the updated NDC.

Develop policies and measures to unlock private, philanthropic, and multilateral investment in sustainable food systems. Capacity-building is a funding priority in Vanuatu.[96] First and foremost, it is important to build fundraising capacities in the country, as donors may have demanding funding requirements that may be difficult to meet.[97] In addition, the capacities of policymakers could be strengthened with an eye on improving policy coherence and increasing institutional capacities for inclusive and participatory governance.[98] Capacity-building for policymakers could further focus on increasing ambition in the next NDC; for example, to cover fisheries and other high-priority sectors that have not been included in the current NDC due to limited capacities. In addition, capacity-building is required to ensure local communities are able to maintain and repair the biogas and composting plants.[99] Disaster risk management is another funding priority, as is loss and damage.[100] In turn, there is a need to provide finance for conducting research to better understand the various interlinkages, synergies, and trade-offs inherent to Vanuatu's food systems,[101] which is crucial for evidence-based decision-making.[102] Finally, as a small island state, unlocking private investment is challenging for Vanuatu.[103] Due to the limited economies of scale, high transportation costs, and low access to domestic and international markets, Vanuatu's private sector is poorly developed.[104] Private finance can be unlocked by addressing some of these challenges; for example, by facilitating access to regional markets for food exports, capacity-building of small and medium food enterprises, or through external investments in transport infrastructure.[105] Before such investments are made, however, it is important to consider, understand, and manage both positive and negative potential externalities related to these investments, including their impacts on food security, food systems emissions, the resilience of the country's food systems, and economic opportunities available to commercial and subsistence farmers.

CASE STUDY SUMMARY

Vanuatu Coastal Adaptation Project, Vanuatu

Underpinned by Vanuatu's flagship National Sustainable Development Plan (Vanuatu 2030), the Vanuatu Coastal Adaptation Project (VCAP) focuses on building climate resilience through improvements to long-term food security, sustained livelihoods, environmental resource protection, and enhancement and improvements to infrastructure in the island archipelago of Vanuatu — a group of 83 islands that lie in the middle of Fiji, Solomon Islands, and New Caledonia.

Implemented and led by the Vanuatu government, VCAP assists communities in Vanuatu to adapt and face the challenges presented by climate change. The VCAP aims to build the capacity of communities to adapt and increase resilience to climate change involving agriculture, livestock, and the protection of water catchment areas. The protection of coastal resources, including mangroves, coral reefs, and local fisheries, is key to both food security and building up coastal defences as sea levels continue to rise in the region. The project has also established an integrated coastal zone management framework incorporating resilience through climate change adaptation supported by appropriate sectoral and cross-sectoral policy and legislation. This includes the establishment of Village Climate Change Development Adaptation Strategies, new ecosystem protected areas, improved infrastructure, and access to markets/healthcare settings and improved food security outcomes.

The VCAP project focuses on eight main strategies and approaches:

1. ***Agriculture and food security:*** Improving the preservation, processing, and marketing of foods ensures foods access markets quickly (reducing food loss) and creates added-value activities that benefit the livelihoods of producers while improving agricultural practices, using a blend of modern and traditional practices.
2. ***Resilient crop species including traditional varieties:*** Including the promotion of indigenous, nutrient-rich foods that are more adapted to extreme climatic conditions (droughts, etc.).
3. ***Land-use planning and management:*** Support for communities for more integrated land-use planning and the development of early warning systems for pests, diseases, and coastal flooding.
4. ***Water management policies/programs:*** Community training and development programs focused on preserving soil, organic matter/moisture, and programs supporting rainwater harvesting.
5. ***Community-based marine resource management programs:*** Working with fishers and coastal communities to protect sensitive coastal ecosystems (mangroves, coastal reefs) through a blend of modern and traditional fishing and aquaculture practices.
6. ***Mainstreaming climate change into human and ecosystem infrastructure design and planning*:** Ensuring transport, health, and other community infrastructure and climate proofed and resilient to future climate impacts (for example, tidal surges).
7. ***Sustainable livestock farming and management*:** Training programs focused on animal husbandry, reducing animal diseases, and reducing environmental impacts (through animal wastes, which can pollute local water course, for example) of animal agriculture.
8. ***Developing integrated coastal zone management programs:*** Including the development of sustainable mangroves and coastal flora management plans, in collaboration with local communities and village chiefs.

Further information and access to the detailed case study can be found here.

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ABOUT THE GLOBAL ALLIANCE FOR THE FUTURE OF FOOD

The Global Alliance is a strategic alliance of philanthropic foundations working together and with others to transform global food systems now and for future generations. We believe in the urgency of transforming global food systems and in the power of partnership to effect positive change. Food systems transformation requires new and better solutions at all scales through a systems-level approach and deep collaboration among philanthropy, researchers, grassroots movements, the private sector, farmers and food systems workers, Indigenous Peoples, government, and policymakers.

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