



The Vanuatu Vulnerability Assessment Framework: A Guide for Sustainable and Transparent Climate Resilience Investment Decisions



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ACRONYMS

CCA	Climate Change Adaptation
CCDRRP	National Climate Change and Disaster Risk Reduction Policy
DARD	Department for Agriculture and Rural Development
DLA	Department of Local Authorities
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DSPPAC	Department of Strategic Policy Planning and Aid Coordination
DWA	Department of Women's Affairs
FRDP	Framework for Resilient Development in the Pacific
GCF	Green Climate Fund
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoV	Government of Vanuatu
HCDI	Human Capacity Development International
IVA	Integrated Vulnerability Assessment
IKM	Information and Knowledge Management
LA(s)	Livelihood Asset(s)
M&E	Monitoring and Evaluation
MLNR	Ministry of Lands and Natural Resources
MRV	Monitor, Report and Verify
MoCC	Ministry of Climate Change, Adaptation, Meteorology, Geo-hazards, Environment, Energy and Disaster Management
MoE	Ministry of Education
MoF	Ministry of Finance
NAB	National Advisory Board on Climate Change and Disaster Risk Reduction
NDA	National Designated Authority
NDMO	National Disaster Management Office
NGO	Non-Governmental Organization
NSDP	National Sustainable Development Plan
NVA	National Vulnerability Assessment
NVAF	National Vulnerability Assessment Framework
PG	Provincial Government
PRRP	Pacific Risk Resilience Programme
PMO	Prime Minister's Office
PMU	Project Management Unit
SDO(s)	Sustainable Development Objective(s)
SDG	United National Sustainable Development Goals
SPC	Secretariat of the Pacific Community
TAC	Technical Advisory Commission
TAG	Technical Advisory Group
TAC	Technical Advisory Commission
TAG	Technical Advisory Group
VMGD	Vanuatu Meteorology and Geo-hazards Department
VNSO	Vanuatu National Statistics Office

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SUMMARY

The Vanuatu National Vulnerability Assessment Framework (NVAF) was developed to enable the channeling of finance to people who live in places that are most vulnerable to climate change and disasters. The NVAF is designed to facilitate a more systematic and robust collation and analysis of existing and forthcoming climate and disaster vulnerability data from multiple sources (stakeholders) and methods (qualitative, quantitative, subjective, objective) to more effectively inform resilience decision-making, planning, project prioritization and financial allocation at national and sub-national levels. Aligned with the Green Climate Fund (GCF) [investment criteria](#), the NVAF aims to facilitate a paradigm shift towards climate-resilient sustainable development by providing a common climate vulnerability assessment framework across sectors and governance levels for: identifying people and places that are particularly vulnerable to climate change and in what way; institutionalizing a gender-sensitive and socially inclusive approach to resilient development; and adaptively managing climate and disaster resilient interventions in accordance with evolving national sustainable development priorities. The effective access to and use of existing and future climate and disaster vulnerability data to address key knowledge gaps in a resilience investment decision-making context is central to the NVAF and its application.

The NVAF recognizes that the effects of climate change and disasters exacerbate existing problems (such as coastal erosion due to mangrove clearing), creates new hardship (such as increased soil salinity due to sea level rise), but may also generate opportunities to rebuild better and safer. The concept of resilience, in the VAF, also encapsulates climate change adaptation (CCA) and disaster risk management (DRM). As such, the VAF is generically structured to categorically assess the current and future effects of climate change and disasters on a wide and varied set of variables that are broadly categorized according to livelihood assets (LAs) capacities and sustainable development objectives (SDOs). The five categorical LAs of the VAF include natural (environmental) resources, infrastructure and services, finance, human resources and institutions and governance and these are assessed according to their capacity to address each of seven SDOs including healthy ecosystems, healthy communities, security of place, water security, food security, income security and energy security (see Table 2). Hence, the VAF comprises thirty-five LA-SDO indices of assessment.

The thirty-five LA-SDO indices of the NVAF are aligned with the goals and strategies of Vanuatu's [National Sustainable Development Plan \(NSDP\)](#) (see Table 3), the [Vanuatu Climate Change and Disaster Risk Reduction Policy \(CCDRRP\)](#), and the [Vanuatu Community Resilience Framework](#). Additionally, the 35 LA-SDO indices can be applied in multiple scales of analysis and, in doing so, enables the vertical integration of vulnerability assessments and monitoring and evaluation (M&E) across sectors at national and sub-national levels. The standardization of vulnerability assessment provided in the NVAF enables a vertical (area and province) and horizontal (sectors) comparative analysis and weighting necessary for the prioritization of resilience interventions at national level. The collation and categorization of vulnerability data according to the 35 LA-SDO indices will be according to sub-national geographical regions, specifically area and province, via a database. Data will be sourced from the following:

- i. existing vulnerability assessment reports and related data from a government, private sector, development partners and other stakeholder documents;
- ii. a standardized and replicable nation-wide vulnerability assessment (NVA) to be led by the National Advisory Board on Climate Change and Disaster Risk Reduction (NAB) and with the respective Provincial Offices, Technical Advisory Group (TAG) and the Technical Advisory Commission (TAC) at the provincial and local area levels and in partnership with NGOs and the private sector.

The NVA features a mixed methods approach to determining vulnerability priorities for each of the thirty-five SDO-LA indices at sub-national levels. In this way, the VAF is able to provide secondary and primary baseline data that can enhance the monitoring and evaluation of climate resilience interventions as well as reporting towards national climate resilient development goals as required under the Paris Agreement, the [Framework for Resilient Development in the Pacific \(FRDP\)](#) and the [United Nations Sustainable Development Goals](#) (SDGs)

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1.0 Introduction

Vanuatu, (like most Small Island Developing States) is a country highly vulnerable to the impacts of climate change and disasters. Vanuatu's island geography, semi-subsistent economy, limited access to infrastructure and relatively high exposure to natural hazards makes it particularly vulnerable¹. The 2018 World Risk Report identified Vanuatu as the country most at risk to natural hazards globally. The increased intensity of experienced cyclones, storm surges, landslides, flooding and droughts are expected to worsen in the future climate². These threats occur alongside the risks of geophysical hazards including volcanic eruptions, earthquakes and Tsunamis as well problems stemming from unsustainable development practices and human, animal and plant disease¹.

Capacity development initiatives to strengthen community, environmental and economic resilience to climate and disaster risks, as envisioned in the Vanuatu Climate Change and Disaster Risk Reduction Policy (CCDRRP) 2016-2030, remains poorly funded, and currently the approved finance meets only a small part of actual requirements.

Vanuatu is preparing to access transformational development finance from the Green Climate Fund (GCF), and in doing so is presented with some critical challenges to mobilize climate finance, such as:

- that lack of institutional knowledge about climate finance access modalities and processes
- inability to meet the strict fiduciary standards required by international funds
- limited capacity to monitor, report, and verify (MRV) climate financed activities
- tracking climate financed projects challenged by the diversity of climate finance accounting processes (e.g. by different NGOs, regional and international agencies and donors)
- absence of a concrete climate investment pipeline due, in part, to a lack of predictability of finance from various sources.

Effective climate resilience decisions and plans target those that are considered most vulnerable to climate change impacts and enable the transformation required for a gender sensitive, socially inclusive, economically prosperous and low carbon future^{3 4}. Vulnerability assessments are an effective way of identifying and prioritizing climate resilience interventions. The NVA provides a single assessment framework that paves the way for diverse data to be quickly and comparatively collected, collated, analyzed and utilized by decision-makers⁵.

¹ Government of the Republic of Vanuatu, 2015, *Vanuatu Climate Change and Disaster Risk Reduction Policy 2016-2030*, Secretariat of the Pacific Community.

² Vanuatu Meteorology and Geo-Hazard Department, 2015, *Current and Future Climate of Vanuatu*, Pacific-Australia Climate Change Science and Adaptation Planning Program.

³ UN Women, 2017, *Mainstreaming Gender in Green Climate Fund Projects*, First Edition, The Green Climate Fund, Incheon, Republic of Korea.

⁴ SPC, PIFs, SPREP and USP, 2014, *Framework for Resilient Development in the Pacific: An Integrated Approach to Assess Climate Change and Disaster Risk Management (FRDP) 2017 - 2030*, SPC, PIFs, SPREP and USP.

⁵ BMZ, 2014, *The Vulnerability Sourcebook: Concept and guidelines for standardized vulnerability assessments*, German Federal Ministry for Economic Cooperation and Development.

1.1 National Resilience Policy and Governance Context

Climate and disaster resilience is a key policy objective in the Vanuatu National Sustainable Development Plan (NSDP) 2016 to 2030⁶. The third policy objective of Pillar 3 in the NSDP states: “A strong and resilient nation in the face of climate change and disaster risks posed by natural and man-made hazards” and sets out to achieve this by:

- institutionalizing climate change and disaster risk governance, and building institutional capacity and awareness
- improving monitoring and early warning systems
- strengthening post-disaster systems in planning, preparedness, response and recovery
- promoting and ensuring strengthened resilience and adaptive capacity to climate related, natural and man-made hazards
- accessing available finance for CCA and DRM

The Climate Change and Disaster Risk Reduction Policy (CCDRRP) 2016 to 2030 vision is for a ‘resilient community, environment and economy’ that is based on accountability, sustainability, equity, community focus, collaboration and innovation¹. The CCDRRP strategic goal is towards a climate and disaster resilient development to drive planning, decision-making, programming across sectors and jurisdictions as aligned with the Vanuatu government’s National Sustainable Development Plan 2016–2030. The NVAf responds mainly to the CCDRRP strategic priority 7.3 on strengthened knowledge and information management for resilience decision-making planning, development and operations and to strategic priority as well as strategic priority 7.4 for reducing climate and disaster vulnerability across sectors as well as nationally and sub-nationally.

⁶ Government of the Republic of Vanuatu, 2015, *Vanuatu 2030: The People’s Plan*, National Sustainable Development Plan, Department of Strategic Policy Planning and Aid Coordination.

Strategy 7.3.3 - Strengthen risk assessment by:

- utilizing the results of risk assessments in designing program and projects;
- developing and building capacity in the use of risk assessment tools, such as geographic information systems to ensure consistency and effectiveness

Strategy 7.4.1 – Address site-specific climate and disaster vulnerabilities by:

- using vulnerability assessments . . . as a basis of all adaptation and risk reduction actions;
- conducting participatory vulnerability assessments prior to implementation;
- utilizing nationally available expertise for vulnerability assessments, incorporating scientific and socioeconomic indicators and observation systems and demonstration sites;
- selecting and prioritizing actions based on transparent vulnerability criteria and using internationally recognized tools (e.g. environmental impact assessment, gender analysis, cost-benefit analysis);
- using available data, statistics and assessment protocols wherever possible;
- publicly sharing assessment data, information and results on the NAB portal

Strategy 7.4.3 – Adaptation and risk reduction action in communities addresses real, current and priority vulnerabilities by:

- undertaking community vulnerability assessments and comprehensive profiles prior to project implementation;
- engaging communities to participate in and lead the vulnerability assessment process in an appropriate language; and
- ensuring that the results of the community assessments are returned to the communities that have participated

Strategy 7.4.4 – Take action around loss and damage by:

- conducting assessments on potential and actual loss and damage across the country linked with ongoing vulnerability assessment processes;
- ensuring that the design and construction of public and other major infrastructure and development projects consider current and projected risks in order to minimize loss and damage, especially by developing and adhering to climate-proofed building codes, environmental impact assessments, regulations and development guidelines.

Excerpted from Vanuatu CCDRRP 2016-2030

Additionally, the NVAF also supports the call for action around climate change related loss and damage as specified in strategic priority 7.4.4¹.

1.1.1 Loss and Damages

The NVAF recognizes that there are limits to adapting to climate change and that ‘loss and damage’ may be experienced when the combined capacity of LAs are so severely impacted by the effects of climate change (such as sea-level rise) that the community is no longer able to meet its livelihood needs in a culturally specific way⁷. The concept of ‘loss and damage’ in the context of climate change is experienced when “a human system is no longer able to secure their valued objectives”⁸. Loss and damage can be: **avoided** by mitigation and adaptation; **un-avoided** due to inadequate action; or **unavoidable** irrespective of how ambitious mitigation and adaptation efforts are⁹ (Verheyen and Roderick, 2008; Huggel et al., 2015). Given that the international community has not been able to curb global greenhouse gas emissions from “dangerous” levels, Pacific Island countries such as Vanuatu can expect to experience loss and damage. Therefore, by systematically assessing the capacity of each LA in meeting SDOs at various points in time, the NVAF is structured to identify **how and when which** losses to valued objectives could potentially occur in the future and identify ways to determine and invest in loss avoidance strategies.

⁷Dow K., et al., 2013, ‘Limits to adaptation’, *Nature Climate Change*, 3 (4), 305-07

⁸ Wallimann-Helmer, Ivo (2015), ‘Justice for climate loss and damage’, *Climatic Change*, 133 (3), 469-80.

⁹ Huggel C., Stone D., Eicken H., Hansen G., 2015, *Potential and limitations of the attribution of climate change impacts for informing loss and damage discussions and policies*, *Climatic Change*, Published online 17 June, 2015.

Identifying when and how which losses could occur requires a systematic assessment of the changing conditions and capacity of various LAs (e.g. natural, infrastructural, human, institutional, etc) and how these affected a community or country's ability to meet their SDOs at different points in time.

1.1.2 Decentralization

At the operational level, the NVA will also inform and enhance the institutionalization of the *Risk-Informed Planning, Budgeting and Monitoring Guidelines for Sub-National Government*¹⁰ which facilitates the implementation of the 10-year Decentralization Plan of the Decentralization Act. The Guideline provides an institutional framework and process to enable Provinces to access budget allocations from the National Government and other sources in a way that responds to community identified needs and priorities and by factoring risks associated with climate change, disasters, gender equity and social inclusion. A key part of the Guideline is the development of community profiles from which two village-identified priority projects are incorporated into the Province 5-year Strategic Development Priority List. The NVA rolls out a relatively rapid approach to assessing vulnerability at the area council level (with the incorporation of data from the community profiles) to inform a more targeted channeling of resilience finance via the provincial administrations. In short, that the NVA will enable the provincial planning institutions to more efficiently identify places that are highly vulnerable to climate change and disasters and to respond more effectively to developing community resilience via a decentralized institutional framework and policy.

1.2 The National Advisory Board for Climate Change and Disaster Risk Management

The National Advisory Board for Climate Change and Disaster Risk Management (NAB) Secretariat is well placed to develop and apply the NVAF given its mandated role as the supreme authority on the country's climate change program. The NAB acts as the official advisory body for climate change and mitigating the risks of natural disasters. It is responsible for the overall management and coordination of climate finance, including the GCF. Various sector line ministries, departments and NGOs are represented at the NAB which further facilitates the mobilization of inter-agency collaboration towards the collation and analysis of climate and disaster vulnerability data for resilience investment decision-making.

The current Vanuatu GCF Readiness Program has invested in strengthening climate ownership and governance nationally through institutional development which includes strengthening the capacity of the NAB and improving strategic engagement with the GCF. The development and endorsement of a national multi-hazard vulnerability assessment framework by the NAB was a key activity of the Readiness Program. Aligned with the Green Climate Fund (GCF) [investment criteria](#), the NVAF is designed to enable a paradigm shift towards climate-resilient sustainable development by providing a common assessment framework (across sectors and governance

¹⁰ Government of the Republic of Vanuatu, 2016, Risk Informed Planning, Budgeting and Monitoring Guidelines for Sub-National Government, Department of Local Authorities, Ministry of Internal Affairs, Vanuatu

levels). The effective use and acquisition of existing and future climate and disaster risk and vulnerability data to address key knowledge gaps, in a resilience investment decision-making context, is central to the NVAF and its application.

The NVAF comprises of a structure and process for collating and synthesizing climate and disaster vulnerability data across sectors with an emphasis on provincial and local area level institutions and jurisdictions via a standardized approach. The standardization of vulnerability assessments such as this enables a vertical (area and province) and horizontal (sectors) comparative analysis and weighting necessary for the prioritization of resilience interventions at national and sub-national levels. More specifically, the NVAF is designed to identify current and future climate and disaster vulnerability hotspots at local area and provincial levels to informing adaptation and resilience investment decision-making, tracking and monitoring and evaluation (M&E).

1.3 The NVAF Development Process

The development of the VAF comprised three stages. First, was the initial drafting of the VAF based on a review of past vulnerability assessment frameworks, methods and findings previously conducted in Vanuatu and the Pacific Islands Region as referenced at the end of this report. This was followed by initial consultations initial with key stakeholders on the principles, structure, methods and data needs for an appropriately designed NVAF for Vanuatu in September, 2017. Stakeholders were consulted collectively via a national workshop as well as interviewed individually and included representatives from government, the private sector, civil society, academic institutions and development partners. The third stage of the VAF development process was a second round of collective and individual consultations to finalize the VAF structure and broader process in December, 2017. The NVAF was also presented and endorsed by the NAB at the end of the December, 2017 consultations. The fourth and final stage was the consolidation of a GCF project concept note to acquire funding for the operationalization and institutionalization of the NVAF process in June, 2018.

2.0 The NVAF Structure

The NVAF is designed to integrate the assessment of climate and disaster vulnerability across sectors and geographic jurisdictions (national and sub-national) from a variety of knowledge sources (sector stakeholders). The NVAF provides a structure and process that paves the way for the utilization of a diversity of data to be rapidly and comparatively utilized for climate and disaster resilience decision-making by the NAB. The analysis of vulnerability as applied in the NVAF is influenced by combination of principles and objectives lessons and outcomes of

previously applied vulnerability assessments in Vanuatu^{2_11_12_13_14_15_16} and other Pacific island countries^{17_18_19_20_21_22}, as well as the goals, objectives and M&E indicator framework of the NSDP²³.

Climate vulnerability is defined by the fourth assessment report of the IPCC (AR4) as:

‘... the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is the function of the character, magnitude and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity’²⁴.

In the above definition: *exposure* is the ‘character, magnitude and rate of change and variation in the climate’; *sensitivity* determines the ‘degree to which a system is adversely or beneficially affected by a given climate exposure’; and *adaptive capacity* is the ‘ability of a system to adjust to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities, or to cope with the consequences’²⁴. In other words, the vulnerability of a social unit (e.g. a village) is determined by the exposure and sensitivity of the

¹¹Oxfam Australia, 2015, *Adaptation and Resilience in Vanuatu: Interpreting community perceptions of vulnerability, knowledge and power for community-based adaptation programming*, Oxfam Australia and Stockholm Environment Institute.

¹²GFDRR, 2011, *Vulnerability, Risk Reduction and Adaptation to Climate Change: Vanuatu*, Global Facility for Disaster Reduction and Recovery.

¹³SPC-GIZ, *Climate Change Rapid Vulnerability Assessment in Guna and Pele Islands, Shefa Province*, SPC-GIZ.

¹⁴Secretariat of the Pacific Community, 2011, *Pacific Catastrophe Risk Assessment and Financing Initiative Assessment: Vanuatu Country Risk Profile*, No. 96758, September 2011, SPC, WB, ADB, GFDRR, GNS, JICA, Air Worldwide.

¹⁵Spickett J., Katscherian D., and McIver L., 2013, *Health Impacts of Climate Change in Vanuatu: An Assessment and Adaptation Action Plan*, Global Journal of Health Science; Vol. 5, No. 3.

¹⁶Warrick, Olivia, et al., 2016, The ‘Pacific adaptive capacity analysis framework: guiding the assessment of adaptive capacity in Pacific Island communities’, *Regional Environmental Change*, 1-13.

¹⁷Taylor M., McGregor A., and Dawson B., 2016, *Vulnerability of Pacific Island Agriculture and Forestry to Climate Change*, Secretariat of the Pacific Community.

¹⁸SPC, SPREP, and PIFS, 2016, *Integrated Vulnerability Assessment Framework for Atoll Islands: A collaborative approach*, Pacific Community (SPC), Secretariat of the Pacific Regional Environment Programme (SPREP) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

¹⁹University of the South Pacific, 2011, *Pacific adaptive capacity analysis framework (PACAF): An assessment of the capacity of 12 rural communities in the Pacific islands to adapt to climate change*, University of the South Pacific, Secretariat of the Pacific Community, and the Australian Red Cross.

²⁰McNamara K., Hemstock S., and Holland E., 2013, *PACE-SD Guidebook: Participatory Vulnerability and Adaptation Assessment*, Pacific Centre for Environment and Sustainable Development, University of the South Pacific.

²¹Secretariat of the Pacific Community, 2016, *Climate change vulnerability assessments for communities in six Pacific Island countries: Fiji, Kiribati, Samoa, Solomon Islands, Tonga and Vanuatu*, SPC and USAID.

²²Dumaru, P., Martin, T. K., Lowry, B., Manuella, T., Deiye, T., Koppert T., Arudovo, W., Fakaosi, T., Powell, T., Vosa, W., Southcombe, D. And Holland, E., 2018. *Pacific Islands Community Vulnerability Assessment (CIVA): A Tool for Resilience Management*, Pacific Centre for Environment and Sustainable Development, The University of the South Pacific, Suva, Fiji

²³Government of the Republic of Vanuatu, 2017, *National Sustainable Development Plan 2016-2030 Monitoring and Evaluation Framework*, Department of Strategic Policy Planning and Aid Coordination.

²⁴IPCC, 2014, ‘Annex II: Glossary [Agard, J., E.L.F. Schipper, J. Birkmann, M. Campos, C. Dubeux, Y. Nojiri, L. Olsson, B. Osman-Elasha, M. Pelling, M.J. Prather, M.G. Rivera-Ferre, O.C. Ruppel, A. Sallenger, K.R. Smith, A.L. St Clair, K.J. Mach, M.D. Mastrandrea, and T.E. Bilir (eds.)]’, in V. R. Barros, et al. (eds.), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press), 1757-76.

assets (e.g. natural, infrastructural, human, social) that they rely on to meet their livelihood needs and well-being and their ability to develop sustainably in a ‘climate impacted’ environment.

Vanuatu’s engagement with the GCF is based on climate-resilient sustainable development principles which translates to achieving sustainable aims in spite of climate change. Recognizing this, the NVAf frames the analysis of vulnerability by assessing the exposure and sensitivity of generic **livelihood assets (LAs)** and the capacity and capabilities of these to achieve nationally defined **sustainable development objectives (SDOs)** in the current and future climate impacted environment. In other words, **the changing conditions of LAs, impacted by climate change and extreme events, determine a nation’s ability to meet their SDOs at a particular point in time**²².

2.1 Livelihood Assets (LAs)

Past vulnerability assessments conducted in Vanuatu and the Pacific have adopted a livelihoods based approach to adaptation^{11,13,15,16}. The term livelihood is defined as the “capabilities, assets and activities required for a means of living²⁵. A livelihood is considered sustainable and adaptive if it adequately deals with climate, disasters and various other hazards whilst maintaining and enhancing its capacity, without undermining the health of natural ecosystem²⁵. The term Livelihood Assets (LAs) includes the range of assets, capabilities and activities that exist across sectors and governance levels (country, community, household). People, communities and countries require a range of assets to realize a desired future in the context of climate change and extreme events. Moreover, the various LAs are closely interlinked such that:

‘no single category of assets on its own is sufficient to yield all the many and varied livelihood outcomes that people seek. This is particularly true for economically disadvantaged people whose access to any given category of assets tends to be very limited. As a result they have to seek ways of nurturing and combining what assets they do have in innovative ways to ensure survival’²⁵.

The VAF is framed by five broad LA categories as listed and defined in Table 1 accordingly.

Table 1: The 5 Defined LAs of the VAF

Livelihood Asset (LA)	Definition
Natural resources (N)	Marine and land-based natural resource stocks, flows and services that support people’s short and long-term livelihood and human security. Natural capital ranges from the more intangible public goods such as atmosphere and biodiversity to the more tangible dividable assets such as land and marine resources that make up coastal, forest and watershed ecosystems.

²⁵ Scoones I., 1998, *Sustainable rural livelihoods: a framework for analysis*, DFID, UK.

Infrastructure and services (I)	Built structures and equipment (e.g. roads, bridges, buildings, freezers, etc.), as well as technical extension services provided by governmental and non-governmental agencies. Infrastructure and services may be categorized by systems that support <i>basic services</i> such as housing, water and sanitation, health, education, justice and others; and those that <i>enable economic activities</i> including transport (roads, bridges, airports, ports/jetties), ICT, energy, agriculture, fisheries, forestry and tourism and other sector industries.
Financial resources (F)	Money that can be accessed via <i>available stocks</i> (such as cash and bank savings, liquid assets such as livestock and jewelry, insurance and credit availability), <i>regular inflows</i> such as income earnings, pension, state transfers and <i>remittance</i> and <i>income in-kind</i> . Financial resources have the following combined features: improves prevention, preparedness and management of risks; uses microfinance to enable ‘smart’ risk taking (e.g. diversifying income sources), enables risk transfer (insurance) and risk reserves (savings).
Life skills (L)	Traditional and modern knowledge and skills of people in a community that enable them to utilize existing resources to meet daily livelihood needs as well as to plan, implement and monitor development actions and processes. However, the number of ‘capable’ people relative to accessible resources within a community also determines resilience, and so demography and mobility are critical factors. The human resources of a community are therefore assessed according to their health, skills and education levels.
Institutions and governance (G)	Informal mechanisms (values, norms, customs and culture) and formal rules (policies, laws and regulations) that influence the way individuals and groups interact, govern and act collectively (via informal and formal organizations). Hence, institutions shape the way people and groups respond to climate change and disaster risks and impacts, by channeling the flow of resources and influences needed to adapt to change.

LA Definitions adapted from Integrated Vulnerability Assessment Framework for Atoll Islands¹⁸

The VAF approach recognizes that climate-resilience investment decisions will be enhanced by understanding the exposure and sensitivity of the combination of LAs to a changing climate and how this affects the ability of individuals, families, communities and countries to meet their current needs and the desired future. These factors are usually determined by what resources can be accessed and how they may be effectively used. The first four are tangible LA assets (natural resources, infrastructure and services, financial resources and human skills) and indicate what a country **has** while institutions and governance are the more intangible assets that explain what a country **does** to meet their needs and desired future in spite of climate change, hazards and extreme events¹⁸. For example, the VAF recognizes that while tangible assets such as natural resources, are critical to supporting livelihoods needs such as food security, the more intangible assets, which includes the rules, values and culture of a particular country determine if, when and how food related resources are cultivated, harvested, distributed and sustainably used and managed²².

2.2 Sustainable Development Objectives (SDOs)

The seven SDOs of the VAF were derived from the 15 goals of the NSDP 2016-2030⁶. The three foundational pillars of the NSDP are an interweave of cultural, Christian and traditional knowledge principles to: improve the wellbeing of people (society); protect and enhance place (environment); and maximize opportunities for shared prosperity (economy). The three pillars of the NSDP branches to 15 goals and 98 objectives, as outlined in Figure 1, from which 213

indicators have been determined via the [NSDP M&E Framework](#).

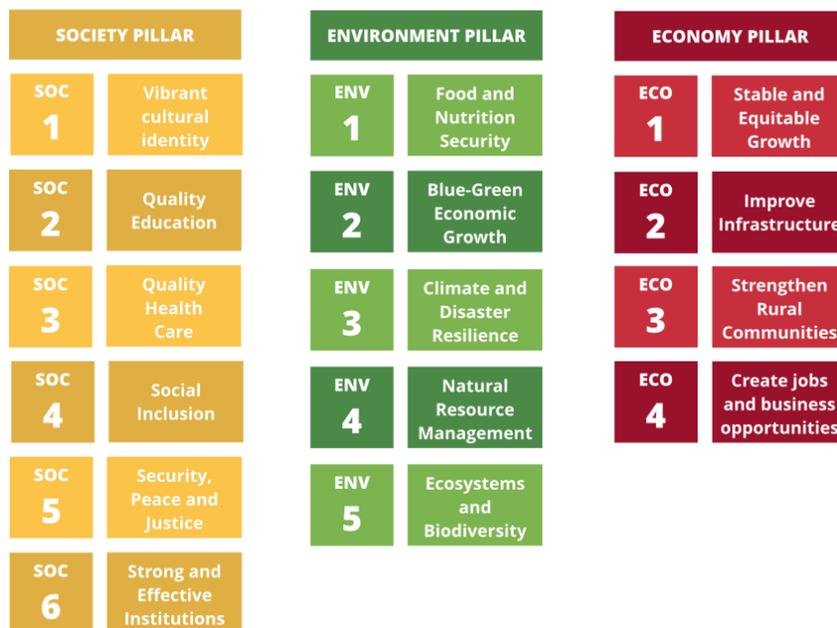


Figure 1: Vanuatu National Sustainable Development Goals (NSDP2030)

To facilitate the analysis of vulnerability across a wide range of sectors, scales, jurisdictions and knowledge sources, the NVAf condensed the 15 NSDP goals into to seven broadly defined SDO that both reflect the most basic needs for survival as shown in Table 2. The seven SDOs of the VAF were defined by national stakeholders and correspond with the NSDP Goals as shown in Table 3 below.

Table 2: The 7 broad SDO and alignment with NSDP Goals

SDO	Definition by National VAF development stakeholders	Alignment with NSDP Goals
Healthy Ecosystems	A healthy ecosystem in Vanuatu is a system that helps us meet our sustainable development objectives while maintaining its inherent qualities even in a changing climate	Env 4: Natural resource management; Env 5: Ecosystems and biodiversity
Healthy Communities	The physical, mental, social, spiritual health supported by a safe environment, access to health and education services, living in harmony between custom and religion, accessible basic needs, adequate sanitation, and healthy behavioral change.	Soc 2: Quality education; Soc 3: Quality health care
Security of Place	Climate and disaster resilient houses, buildings and settlement (e.g. built outside buffer zones) with adequate access to health and education services, harmonious relationship between neighbors; effective community policing and judicial services (e.g. for the safety of women, children and disabled), and adaptable to climate change	Soc 1: Vibrant cultural identity; Soc 4: Social inclusion; Soc 5: Security, peace and justice; Soc 6: Strong and effective institutions. Env 3: Climate and disaster resilience

Water Security	Fair and reliable access to clean and sufficient water by all and includes the protection of water sources, alternative (back-up) sources of water, sustainable and gender inclusive water decision-making and management processes around water	Env 4.2: Protect vulnerable forests, watersheds, catchments and freshwater resources, including community water sources; Eco 2.2: Ensure all people have reliable access to safe drinking water and sanitation infrastructure
Food Security Income Security	When people at all times have access to sufficient, safe nutritious food to maintain a healthy and active life. Other key issues: access to land to grow food; access to organic food (without applied chemicals); access to markets; access to income to buy food; gender equity in the food production and consumption; knowledge to planting crops according to weather patterns; food abundance and sharing; access to marine and land-based food resources; access to tools/equipment for food production; access to water (rivers, rain, lakes) for farming and drinking	Env 1: Food and nutrition security
Income Security	Enough income to meet basic needs and services and includes the ability to save and access savings, have a diversity of sustainable income sources; gender and socially inclusive income generation opportunities that also supports community values; access to financial and service and institutions; financial literacy; assets and liquidity; business opportunities; access to markets and value chain. *"Unless you have financial literacy, you won't know what income security it".	Env 2: Blue-green economic growth; Eco 1: Stable and equitable growth; Eco2: Improve infrastructure; Eco 3: Strengthen rural economies; Eco 4: Create jobs and business opportunities
Energy Security	Access to sustainable energy such as solar, wind, hydro, geothermal; government resources (funding, technical and human resources and infrastructure) to provide sustainable energy solutions; community resources to pay for maintenance of energy supply; governance structures to manage and maintain energy solutions at community level; holistic approach to access (e.g. men, women, female headed households, people with disabilities and minority groups; sustainable energy solutions for lighting, cooking, fridge, food preservation, transport.	Env 2.3 Promote renewable sources of energy and promote efficient energy use; Eco 2.1 Increase access to safe, reliable and affordable modern energy services for all that are increasingly generated from renewable sources and reduce reliance on imported fossil fuels

2.3 Vulnerability Indices

The assessment of vulnerability, under the VAF, is structured along the 35 intersecting SDO-LA indices as shown in Table 3. In this analytical structure the extent to which a country is able to address their priority SDOs within the changing conditions of available LAs, is a measure of their vulnerability, for a particular point in time. Such an assessment approach is deliberately designed to allow for a justifiable and comparable aggregate rating to be derived at the provincial and national levels and within the context of the national climate resilience and sustainable development goals.

Table 3: The 7 Defined SDOs of the VAF aligned with the NSDP 2030 Goals

NSDP Vision: A stable, sustainable and prosperous Vanuatu								
*culture *responsive state to all citizens *pristine environment *cc and disaster resilience *job & earning opportunities for rural &urban	SOCIETY PILLAR soc 1 Vibrant cultural identity soc 2 Quality Education soc 3 Quality Health Care soc 4 Social Inclusion soc 5 Security, Peace and Justice soc 6 Strong and Effective Institutions		ENVIRONMENT PILLAR ENV 1 Food and Nutrition Security ENV 2 Blue-Green Economic Growth ENV 3 Climate and Disaster Resilience ENV 4 Natural Resource Management ENV 5 Ecosystems and Biodiversity			ECONOMY PILLAR ECO 1 Stable and Equitable Growth ECO 2 Improve Infrastructure ECO 3 Strengthen Rural Communities ECO 4 Create jobs and business opportunities		
	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
	VAF MANDATE	Env Goal 3: A strong and resilient nation in the face of climate change and disaster risks posed by natural and man-made hazards						
	CCDRP Vision	Vanuatu is a resilient community, environment and economy						
	CCDRP Definition	<i>Vulnerability: The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard</i>						
	Livelihood Assets (LAs)	Human Security Objectives (HSOs)						
	SECURITY OF PLACE P	HEALTHY COMMUNITY H	HEALTHY ECOSYSTEM E	WATER SECURITY W	FOOD SECURITY F	INCOME SECURITY I	ENERGY SECURITY N	
INSTITUTIONS & GOVERNANCE: g *customary *socially inclusive	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 & 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	

For example, water security (W) in a changing climate is determined by the changing conditions of: natural water sources such as groundwater, surface water and rainfall levels (Wn); pumps, tanks, piping, purification and water extension services (Wi); the level of disposable funds that

users/providers (depending on who is being assessed) are able to commit to maintain and manage the water system (Wf); the knowledge and skills of users/providers to maintain the water system (Wh); and the ability of water managers and users to ensure water is accessible to all and is managed inclusively and sustainably (Wg). It is important to note that the assessment of each vulnerability index can be investigated to different levels to reflect the context (e.g. groundwater security in an atoll environment) and scale (e.g. household, community, sub-national, national) of analysis). In doing this, a baseline vulnerability situation is developed and can later be used to determine climate and disaster risk priority areas or ‘hotspots’ as well as support the monitoring and evaluation of climate change impacts and the effectiveness of resilience interventions over an indefinite period of time.

3.0 Operationalizing the NVAF

The NVAF is an assessment framework that defines the structure and process of gathering, analyzing and categorizing relevant climate and disaster vulnerability data to better inform resilience investment decision-making and prioritization as well as monitoring and evaluation. The guiding principles of the CCDRRP 2016-2030 requires that the VAF data gathering, analysis and reporting process be gender and socially inclusive the Decentralization Act encourages the devolution of administrative influence to the respective provinces. The is also designed to facilitate the vertical integration of vulnerability prioritization from the community to national levels. Such an information and knowledge management process requires a standardized procedure of collecting and analyzing secondary and primary vulnerability data from various sectorial sources and at various sub-national administrative levels. The NVAF comprises four operational components comprising the design, implementation, analysis and institutionalization that can be repeated, improved and adapted to meet changing needs and environmental conditions.

Component A: NVAF Database and Assessment Tool Design

The design component includes the development of a national NVAF structured open-source database with a linked web interface and the development of an appropriate assessment tool for data gathering and analysis. This component includes the collation of secondary data and its incorporation into the database on a continuous basis. The secondary data may be sourced from relevant publications, reports and links to existing and developing databases that contains vulnerability related data on Vanuatu such as the national census and statistical survey datasets, NSDP baseline survey, Environment Management Information Systems, Provincial Community Profiles and NGO vulnerability assessments, to be aggregated at provincial levels and categorised according to the seven SDOs. A revisable annotated bibliography identifying key NVAF components and gender and social inclusion data would facilitate the effective use of database for analysis at national and sub-national levels.

The NVA assessment tool to be further refined, field tested and finalized for the initial assessment will be standardized for application in the 72 local areas of the six provinces. The tools may be applied and adapted for improvement on a continuous basis and incorporated into the database for future reference and use. A national workshop to ensure the integrity of the NVA field assessment tools and analysis methods prior to field application will strengthen the quality of assessment outcomes.

Component B: NVA field survey implementation

The installation of the NVA equipment and internet services in the respective provincial offices and the training of province based NVA enumerators. Provincial enumerators will be trained on the purpose, principles and structure of the NVAF and on the application nationally verified tools for gathering vulnerability field data at local area levels. The training will also include the use of tablets for collating and storing field data including written narrative, mapping and photography. The development of formal qualifications for the NVA assessment tools and a registry of trained practitioners will enable similar assessments to be conducted on a periodical basis that is far more cost-effective than the initial (baseline) survey.

Component C: National and provincial vulnerability hotspot analysis

The analytical component of the NVA involves the drafting of national and provincial vulnerability hotspot analysis reports and the communication of the analysis outcomes to the wider community. The draft vulnerability hotspot analysis will be in a standardized, repeatable reporting format that incorporates secondary and primary (NVA field data) data as well as future climate risk models available from other projects. A national multi-sector technical experts' workshop will be conducted to review the first draft of the vulnerability hotspot reports and this will be followed by review workshops in each for the six provinces. Feedback from both forums will be incorporated into a pre-final draft of the vulnerability hotspot reports and presented to the NAB for review and finalization. Public awareness materials will be developed to communicate the outcomes of the national and provincial vulnerability hotspot analysis outcomes in Bislama.

Component D: Climate and disaster vulnerability IKM institutionalization

The institutionalization of the climate and disaster vulnerability IKM will be carried out via the following measures:

- identify and enable at least three government personnel from key departments to leverage climate and disaster IKM institutionalization
- Conduct dialogue workshops with PMO, MoCC, DLA and VNSO to lead the vulnerability IKM institutionalization process at national and provincial levels
- Conduct IKM training in each province on the use of the NVAF database to develop

resilience project concept notes

- Conduct IKM training with sector stakeholders including the private sector on the use of the NVAF database to develop resilience project concept notes
- Conduct climate and disaster risk informed planning workshop with DSPACC and MoF
- Carry out a series of vulnerability IKM institutionalization workshops with the NAB

4.0 Conclusion

The Vanuatu NVAF presents a simplified methodology for analyzing vulnerability data from multiple sources and methods to efficiently inform climate and disaster resilience investment decision-making, planning and M&E across sectors at national and provincial levels. It has developed via lessons from past vulnerability assessment methodologies applied in Vanuatu and the Pacific Islands region, group and individual consultations with a wide range of stakeholders. Further, the NVAF has been contextualized to support the NSDP and CCDRRP 2016 to 2030 as well as the Decentralization Act and program of activities. The operationalization of the NVAF is based on four components that focus on participatory and consultative approaches to vulnerability data gathering and analysis at local area level that can facilitate aggregated analysis at the provincial and national levels.

