



# Cabo Verde

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## 2020 Update to the first Nationally Determined Contribution (NDC)

MINISTÉRIO DA  
AGRICULTURA E  
AMBIENTE

GOVERNO DE  
**CABO  
VERDE**  
A TRABALHAR PARA TODOS.



Praia, February 2021

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THE GOVERNMENT  
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# Foreword

Climate change and the threat they pose to the balance and future of the Planet are one of the biggest problems facing humanity today. Indeed, global warming, caused mainly by large greenhouse gas (GHG) emissions, thawing and retreating glaciers, rising sea levels, coastal erosion and increasing frequency and intensity of meteorological events and extreme weather are part of the scientific evidence and tend to get worse.

Cabo Verde, like other Small Island Developing States (SIDS), contributes insignificantly to global warming. However, due to the fragility of their ecosystems, it is among the countries that suffer most from the consequences of this phenomenon: increased climatic aridity and the frequency of droughts, worsening saline intrusion and deterioration of groundwater, soil degradation and loss of biodiversity, increase frequency of storms and hurricanes, among others. Due to the smallness and weaknesses of its economy, it is also characterized by the weak capacity to replace the damage caused by catastrophes resulting from extreme weather and climatic events.

We are, therefore, at the forefront of those who call for the strengthening of Climate Action in the world and the strong solidarity between countries, deserving special attention from SIDS. On behalf of the Government of Cabo Verde, I reaffirm our country's will and commitment to do everything to assume our responsibilities under the Paris Agreement. With this first update of our Nationally Determined Contribution (NDC), we commit to decarbonizing our economy, strengthening the country's resilience and adapting the sectors of human activity to the harmful effects of climate change. This commitment stems from the policies and strategies adopted for the sustainable development of our islands and constitutes our country's contribution to global efforts to reduce emissions and limit the increase in global average temperatures to 1.5 ° C above pre-industrial levels.

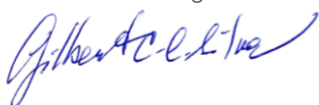
In practical terms, there are 14 specific contributions until 2030 (5 for Mitigation and 9 for Adaptation), which will translate into a reduction in our emissions by at least 20%, that is, from 200,000 to 280,000 tCO<sub>2</sub>eq. annually. For the implementation of these contributions, more than one hundred measures were identified, whose lasting impact of adaptation will also be felt in food security, water security, energy security and the resilience of the economic and social sectors. More than half of the electricity will come from local renewable sources, mobility will be low carbon, through the promotion of electric vehicles, especially in public transport, most of the seawater desalination facilities will start to work with wind and solar energy. We will adopt the best knowledge and practices in the management of natural resources and in Agriculture, sharing our experience with other countries.

This NDC update is an ambitious and realistic commitment, confirming our firm determination to achieve a fair transition to sustainable, carbon-neutral development.

This is in line with Cabo Verde's sustainable development objectives and with national and sectoral programs, plans and strategies, on the one hand, and with the objectives of the Paris Agreement and other international agendas, including, among others, development objectives sustainable.

The document, structured in 6 chapters, addresses the reasons for updating the NDC in the context of Climate Ambition 2030, and presents Cabo Verde's concrete contributions to Mitigation and Adaptation and the perspective of climate governance for this purpose. It ends with a chapter on priorities and needs, namely in terms of international support, financing, capacity building and technology transfer.

I conclude by thanking the valuable work of so many specialists, public entities and civil society organizations, international partners and friendly countries, whose contributions allowed us to update our Nationally Determined Contribution (NDC), in the context of the Paris Agreement, in perfect alignment with the sustainable development policies and strategies of our small island and archipelagic state.



Gilberto Correia Carvalho Silva  
Minister of Agriculture and Environment

Praia, February 15, 2021.

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## ACRONYMS

ACE	Action for Climate Empowerment
AFOLU	Agriculture, Forestry and Other Land Use
ANAS	Agência Nacional de Água e Saneamento National Water and Sanitation Agency
ANMCV	Associação Nacional dos Municípios de Cabo Verde National Association of Municipalities of Cabo Verde
BAU	Business-as-usual
BUR	Biennial Update Report
CIME	Comissão Interinstitucional para Mobilidade Elétrica em Cabo Verde Electricity Mobility Policy and Action Plan adopted in 2018
CNAS	Conselho Nacional de Água e Saneamento National Water and Sanitation Council
CND NDC	Contribuição Nacionalmente Determinada Nationally Determined Contribution
CQNUMC UNFCCC	Convenção-Quadro das Nações Unidas sobre Mudanças Climáticas United National Framework Convention on Climate Change
DGEM	Direção Geral da Economia Marítima General Directorate of Maritime Economy
DGSAP	Direção Geral da Agricultura Silvicultura e Pecuária General Directorate of Agriculture, Forestry and Livestock
DNA	Direção Nacional do Ambiente National Directorate of Environment
DNAPEC	Direção Nacional dos Assuntos Políticos, Económicos e Culturais National Directorate of Political, Economic and Cultural Affairs
DNICE	Direção Nacional de Indústria, Comércio e Energia National Directorate for Industry, Commerce, and Energy
DNP / MF	Direção Nacional do Planeamento/Ministerio das Finanças National Directorate of Planning/Ministry of Finance
DRR RRD	Disaster Risk Reduction Redução de risco de desastre
EE	Eficiência Energética Energy Efficiency
ENAP	Estratégia Nacional de Áreas Protegidas, 2016 National strategy for protected areas
ENRRD	Estratégia Nacional para Redução de Risco de Desastres National Strategy for Disaster Risk Reduction
ENSAN	Estratégia Nacional de Segurança Alimentar e Nutricional (2015-2020) National Strategy for Food and Nutrition Security
EPANB	Estratégia e Plano de Ação Nacional sobre a Biodiversidade (2014-2030)

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	National Biodiversity Strategy and Action Plan
EPR	Emergency Preparedness and Response
ESGAS	Estratégia Social e de Género para o Sector da Água e Saneamento Social and Gender Strategy for the Water and Sanitation Sector
ETF	Enhanced Transparency Framework Quadro de Transparência Reforçada
GCF	Fundo Verde para o Clima Green Climate Fund
GDP	Gross Domestic Product
Gg	Gigagram
GHG	Greenhouse Gas
GWh	Gigawatt-hours
ICF	International Climate Finance
ICIEG	Instituto Cabo-verdiano para a Igualdade e Equidade do Género National Institute for Gender Equality and Equity
INE	Instituto Nacional de Estatística National Institute of Statistics
INFRA	Infraestruturas de Cabo Verde Infrastructures of Cabo Verde
INGT	Instituto Nacional de Gestão do Território National Institute of Territory Management
INMG	Instituto Nacional de Meteorologia e Geofísica National Institute of Meteorology and Geophysics
IPCC	Painel Intergovernamental sobre Mudanças Climáticas Intergovernmental Panel on Climate Change
ITMOs	Internationally Transferred Mitigation Outcomes (art 6.2 PA)
LULUCF	Land Use, Land-Use Change and Forestry
LT-LEDS	Long-term low emissions development strategy 2050
MAA	Ministério da Agricultura e Ambiente
MAE	Ministry of Agriculture and Environment
NAMA	Nationally Appropriate Mitigation Actions Ações de Mitigação Nacionalmente Adequadas
NAPA	National Programme of Action for Adaptation to Climate Change 2008 – 2012
NAP	National Adaptation Plan
NbS	Nature-based-solutions
NDC	Nationally Determined Contributions
NFCS	National Framework for Climate Services
NGO	Non-Governmental Organisation Organização não governamental
NIR	National Inventory Report
NMA	Non-market Approach (Art 6.8 PA)
PA	Paris Agreement
PAGIRE	Plano de ação Nacional Para a Gestão Integrada dos Recursos Hídricos

	National Action Plan for Integrated Water Resources Management
PDAS	Plano Director de Água e Saneamento Water and Sanitation Master Plan
PDM	Plano Diretor Municipal Municipal Master Plan
PDSE EMP	Plano Diretor do Setor Elétrico Electricity Master Plan
PE-SNIA	Plano Estratégico do Sistema Nacional de Investigação Agrária (2017- 2024) Strategic Plan of the National Agricultural Research System
PEDS	Plano Estratégico de Desenvolvimento Sustentável (2017-2021) Strategic Plan for Sustainable Development
PEMDS	Plano Estratégico Municipal de Desenvolvimento Sustentável Municipal Strategic Plans for Sustainable Development
PENGER	Plano Estratégico Nacional de Prevenção de Resíduos (2015-2030) National Strategic Plan for Waste Prevention
PLANEER	Plano Estratégico de Extensão Rural (2017–2026) Strategic Rural Extension Plan (2017–2026)
PLEAR_CAV	Plano Estratégico de Desenvolvimento das Estatísticas Agrícolas e Rurais Strategic Plan for Agricultural and Rural Statistics (2015–2021)
PLENAS	Plano Estratégico Nacional de Água e Saneamento National Strategic Plan for Water and Sanitation
PNEE	Plano Nacional para a Eficiência Energética National Action Plan for Energy Efficiency
PNIA-SAN	Plano Nacional de Investimento agrícola, segurança alimentar e nutricional, 2018 National Programme for Agricultural Investment, Food and Nutrition Security
PNIEA	Plano Nacional de Investimento da Economia Azul National Blue Economy Investment Plan
PNIG	Plano Nacional de Igualdade de Género Gender Action Plan
PNSE	Programa Nacional para a Sustentabilidade Energética National Programme for sustainable Energy
POOC	Plano de Ordenamento da Orla Costeira e do Mar Adjacente Coastal and Adjacent Seaside Management Plans
PROMEIA	Programa de Promoção para Economia Azul Blue Economy Promotion Program
QEUEA	Quadro Estratégico Unificado para a Economia Azul Unified Strategic Framework of the Blue Economy
RE	Renewable Energy Energias renováveis
SDG ODS	Sustainable Development Goals Objetivos de Desenvolvimento Sustentável
SIDS PEIDS	Small Island Developing States Pequenos Estados insulares em Desenvolvimento
SIE / SIA / SIAAS / SIF / SIR	Sistema de informação sobre energia / ambiente/ água / silvicultura / riscos

	Information system on energy / environment / water / forestry / risks
<b>SNICV</b>	Sistema Nacional de Inventário de Gases de Efeito Estufa National Greenhouse Gas Inventory System
<b>SNPCB</b>	Serviço Nacional de Proteção Civil e Bombeiros National Civil Protection and Fire Service
<b>SPAME</b>	Serviço de Prospetiva, Acompanhamento Macroeconómica e Estatísticas Service for Prospective, Macroeconomic Monitoring and Statistics
<b>Tep/toe</b>	Tonelada equivalente de petróleo Tonne of oil equivalente
<b>UNFCC</b>	United Nations Framework Convention on Climate Change Convenção-Quadro das Nações Unidas sobre a Mudança do Clima
<b>ZEEEM-SV</b>	Zona Económica Especial de Economia Marítima em São Vicente Special Economic Zone of Maritime Economy in São Vicente
<b>ZDER</b>	Zone for the Development of Renewable Energies



# SUMMARY OF NDC CONTRIBUTION (2030) AND LONG-TERM DECARBONISATION VISION (2050)

Deeply supportive of the goals and objectives of the Paris Agreement (PA), Cabo Verde puts forward an update to its first Nationally Determined Contribution (NDC) from 2015. The update deepens and moves beyond the initial set of actions and commitments with respect to scope, sector ambition, balancing of mitigation and adaptation action, climate justice and gender equality, as well as transparency and governance.

With 14 contributions and more than hundred measures planned, Cabo Verde seeks to achieve a substantial mitigation benefit – in the order of 180,000 tCO<sub>2eq.</sub> to 242,000 tCO<sub>2eq.</sub> annually by 2030 – as well as a lasting adaptation impact in terms of food, water and energy security for Cabo Verde and improved resilience across communities.

Although Cabo Verde's population compares well with other countries in Africa in terms of access to energy, water and education, the pandemic has shown that economic and health emergencies are exacerbated by the triple crisis of resources scarcity, climate change and biodiversity loss, particularly for Cabo Verde's rural society.

The NDC firmly responds to the development objectives of Cabo Verde's *Ambição 2030* (Ambition Plan 2030).

Cabo Verde's flagship contributions include:

- The 2030 commitment to reduce economy-wide greenhouse gas (GHG) emissions by 18% below business-as-usual (BAU) and to increase this target to 24% on the condition of adequate international support;
- The long-term commitment to achieve a decarbonised economy by 2050 and to boost electricity generation from renewable energies, including by building a pumped storage and other energy storage capacities;
- The 2030 commitment to shift progressively to low carbon public transport, including active modes and international maritime transport;
- The 2030 commitment to reverse the trend of habitat degradation, substantially improve biodiversity, water retention, strengthen soils and restore forests and coastal wetlands;
- The 2030 commitment to use renewable energy (RE) for water supply mobilisation and to secure a sustainable and resilient water management system;
- The 2030 commitment to provide sewage systems to all households and provides safe wastewater treatment, including the use of RE and the recovery of nutrients and energy from wastewater;
- The 2025 commitment to establish comprehensive and coherent planning tools – adaptation, spatial, urban, disaster response – at the central as well as municipal levels;
- The 2030 commitment to design and develop its ocean-based economy in a low-carbon way – covering transport, fishing, coastal infrastructure and coastal energy, tourism – enhancing nature-based solutions (NbS), conserving and restoring natural habitats;
- The 2025 commitment a specific Roadmap 'Responsible Tourism in the Circular Economy' defining a 2030 target of reducing GHG emissions from the sector;
- The 2025 commitment to build a monitoring system for tracing climate change related risks to public health and integrate climate change resilience targets into the national One Health policy framework;

- The 2025 commitment to create a strong platform for the empowerment of the young, women and society as-a-whole in climate change policymaking and the implementation of climate-change responses fostering knowledge, skills and sustainable jobs.

To ensure robust implementation in line with the Enhanced Transparency Framework (ETF) established under the Paris Agreement, Cabo Verde will enact dedicated legislation covering comprehensive monitoring, reporting and evaluation of GHG data, mitigation action as well as adaptation action, and defining a cross-institutional climate governance framework.

While mobilising substantial domestic funding, Cabo Verde will rely on **international support – technological, capacity-building and finance** – to achieve its 2030 contributions. The Cabo Verde Government will adopt a Climate Finance Strategy and Roadmap by 2022 to establish and prioritise how best to incentivise domestic investments and how to direct funding from international public, private and philanthropic sources for use in different project preparation and financing stages.

**Cabo Verde supports the use of all of the enhanced ambition instruments under Art. 6 of the Paris Agreement, focusing on energy and mobility under the provision on cooperative approaches (Art. 6.2 Paris Agreement) and on targeting adaptation benefits for rural communities (food and water security and healthy soils) as well as interventions on sustainable tourism and blue habitats (ecosystem services from coastal wetlands and marine resources) under the non-market approaches provision (Art. 6.8 Paris Agreement).**

### Box 1: List of NDC measures and their estimated\* international funding needs for implementation 2020-2030

<b>5 Mitigation Contributions</b>	<b>1 000 Mio Euro</b>
#1: Reducing energy intensity and fostering energy efficiency	
#2: Increasing renewable energy targets	
# 3: Lowering the carbon intensity of mobility	
# 4: Shifting towards responsible tourism and circular economy	
# 5: Fostering the natural sink function of ecosystems	
<b>9 Adaptation Contributions</b>	<b>1 000 Mio Euro</b>
#1: Improving water security and natural replenishment while reducing water carbon intensity	
#2: Enhancing sewage, solid waste and wastewater treatment	
#3: Increasing and sustaining land-based food security through regenerative agriculture	
#4: Increasing and sustaining ocean-based food security through regenerative fishing	
#5: Extending marine protected areas	
#6: Defending marine resources and coastal zones	
#7: Using spatial planning as an ally in climate change mitigation and adaptation	
#8: Mitigating climate related disaster risks and vulnerabilities	
#9: Confronting climate related health risks	
<b>Total estimated funding needs for NDC 2020-2030</b>	<b>2 000 Mio Euro</b>

\*to be confirmed and detailed in the upcoming NDC Implementation Road Map 2021

## NATIONAL CONTEXT

Located some 620 km off the west coast of Africa, Cabo Verde is an archipelago of ten islands of which nine are inhabited. Despite the arid climate and mountainous terrain, Cabo Verde has been developing rapidly, in a large part thanks to its flourishing tourism industry, graduating from a least developed to a middle-income country in 2007.

As a small island development state (SIDS), Cabo Verde, a very small emitter of GHG emissions at a per capita rate of just under 1 tCO<sub>2eq</sub>, is disproportionately vulnerable to external economic shocks and extreme climatic events that can instantly erase years, if not decades of development gains.

Cabo Verde is also facing significant capacity constraints, limited fiscal space and insufficient domestic finance to respond adequately to challenges posed by climate change. This has been compounded by the economic fallout of the COVID 19 global pandemic and exacerbating the already existing high debt to GDP ratio. Although Cabo Verde has made remarkable progress in poverty reduction over the last decade, poverty remains widespread (35% of the population as recently as 2015, INE 2019). The COVID 19 pandemic has caused the biggest recession in Cabo Verde's modern history affecting virtually all economic sectors, including notably tourism, which is of strategic importance. Current macro-fiscal indicators are provided in Table 1 below.

Table 1: Main macro-fiscal indicators in Cabo Verde (% change each time compared to previous year)

Indicators	Units	2019	2020P*		2021P	
			Base	COVID Scenario	Base	COVID Scenario
GDP	Variation in %	5.7	5.5	- 6.8	5.5	4.5
Inflation		1.1	1.2	1.0	1.2	1.2
Number of tourists	Variation in %	7.0	6.6	- 58.8	7.4	35
Unemployment rate	In % of active population	11.3	11.4	19.2	10.7	17.2
Public Deficit	In % GDP	- 1.8	- 1.7	- 11.4	- 1.4	- 9.7
Public Debt	In % GDP	124.2	118.5	145.8	113.3	148.1

Source: Fonte: SPAME/DNP (2020), \* P = predictions

Pre-pandemic statistical data shows a country whose population doubled since Independence in 1975, to count 544,000 inhabitants in 2018, with an estimated increase to 620,000 inhabitants in 2030, a scenario that presents opportunities and challenges. While requiring massive efforts at all levels of society, the coming years will be dedicated to rebuilding the economy not just as it was, but more resilient, fairer and better.

Cabo Verde, an African model of democracy, stability and share of the population with access to education (93% enrolment 2018), water (86%, 2018)<sup>1</sup> and electricity (92.2%, 2019)<sup>2</sup> and has made the Sustainable Development Goals (SDGs) the backbone of its economic, social and cultural planning.

While national efforts are underway and will continue to be exerted toward emissions reduction and building resilience, Cabo Verde's national efforts alone will not be sufficient for achieving the goals of the NDC in mitigation and adaptation and in securing the long-term sustainable development and decarbonisation of Cabo Verde.

<sup>1</sup> Anuário Estatístico 2018, INE

<sup>2</sup> Inquérito multi-objectivo contínuo (IMC 2019)

## Climate vulnerabilities

The pandemic has exposed the extreme fragility of economies and development gains in tourism-based import-dependent SIDS, such as Cabo Verde.

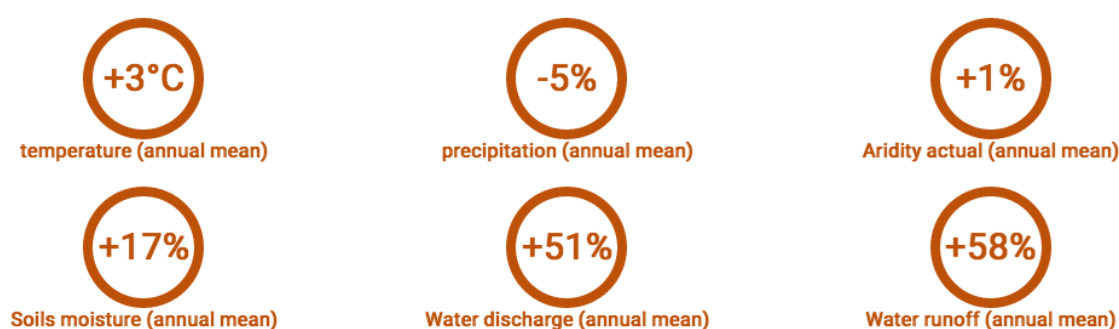
An archipelago of ten volcanic islands with no permanent water courses, no natural forests, limited mineral resources and scarce in areas suitable for agriculture (only 12% of its territory is arable land), Cabo Verde is particularly exposed to increasingly extreme weather events, desertification of land and persistent droughts, occasional but severe and highly damaging heavy rains (most recently in September 2020), and sea-level rise.

As a consequence, the archipelgo faces severe adaptation challenges associated with, among others, water resource scarcity, food and energy security.

The access to affordable and sustainably-sourced energy and water, the protection of the islands' delicate unique biodiversity and soils, sustainable development and the deployment of socio-ecological resilience within the planetary boundaries are a matter not just of policy choice but of survival.

In Cabo Verde, since 1990, temperature increase by 0.04%/year. Recent projections indicate a temperature increase of about 1°C for the period 2011-2040 and of 3°C until the end of the century. Results also show a reduction in annual average precipitation of about 2%, a temporal extension of the dry season, with an increased likelihood of droughts, and a shortening of the rainy season, with a concentration of heavy, localised rains in a short period of time, causing high water discharge and run-off and soil erosion.

Figure 1: Climate indicators for the period 2011-2040









Source: WMO, MAA, GCF, 2019<sup>3</sup>

Already today, Cabo Verdeans have to adapt to ever-longer drought periods, storms, soil erosion, salt intrusion and increased desertification. For the country's high exposure to natural hazards, see Table 2 below.

<sup>3</sup> Enhancing climate science of Green Climate Fund Activities in Cabo Verde, WMO, MAA, GCF, 2019 and Plano nacional para o Quadro de serviços de clima em Cabo Verde, MAA/WMO, Oct 2020.

Table 2: Disaster Risk Profile of Cabo Verde

HAZARD	IMPACT
	On average, around \$2 million of income is expected to be lost due to crop failure result from agricultural drought.
	Around 150,000 people are exposed to flash flood hazard in Cabo Verde.
	Landslide is a very localized hazard, but on average could cause damage of at least \$200,000 per year, though a single large landslide could cause much greater damage.
	Damaging earthquakes are infrequent, but it is estimated that around 1,500 people could experience at least light ground shaking at least once every 50 years.
	Cabo Verde has active volcanoes; almost the entire populations of Fogo, Santo Antao and Bravo are potentially exposed to volcanic ashfall (70,000 in total).
	Tropical cyclone hazard is relatively low at the archipelago but can cause damage, as observed during Hurricane Fred (2015).

Source: World Bank -Global Facility for Disaster Risk Reduction and Recovery, 2019

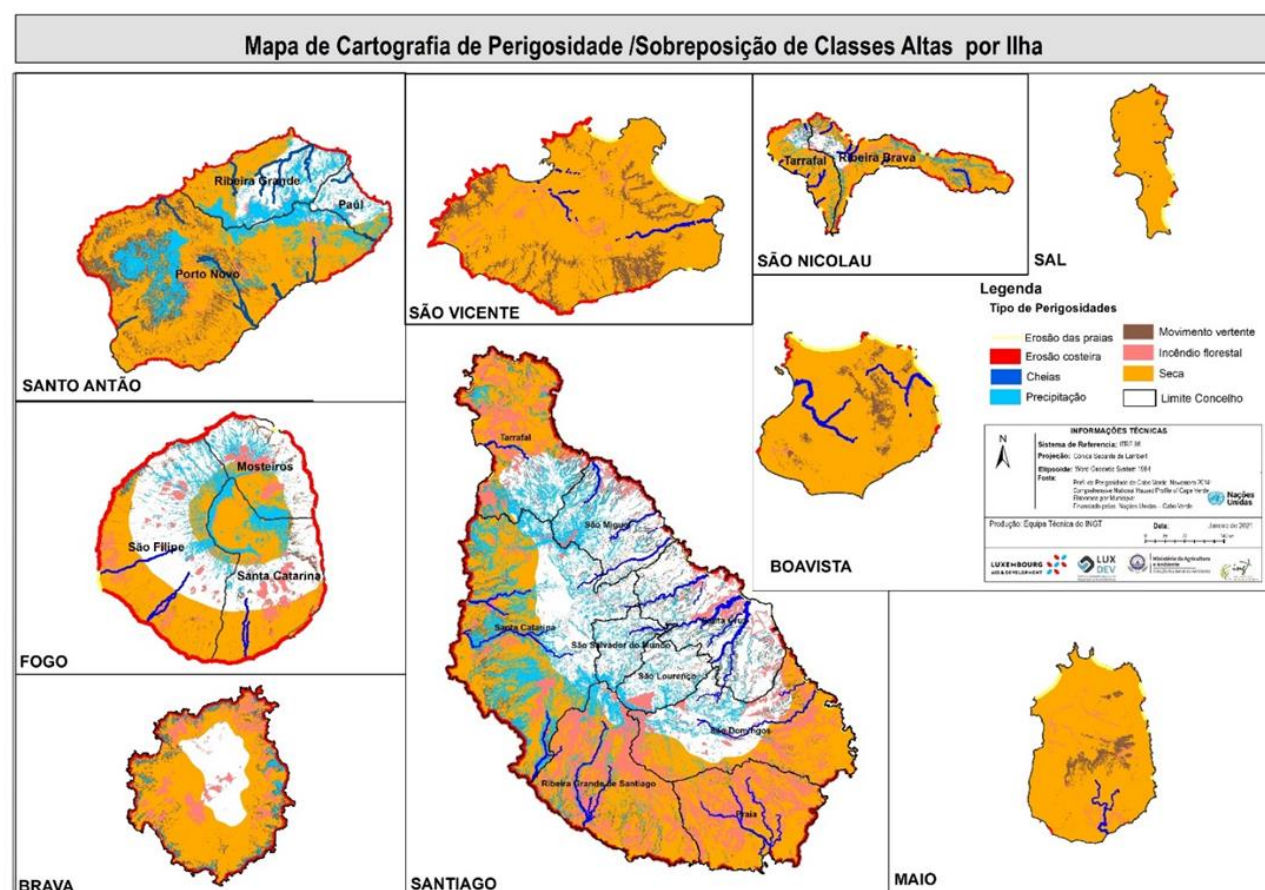
The situation is made more difficult by the country's relatively small size in terms of territorial boundaries, demographics and the economy, as well as its geographic isolation. While Cabo Verde's islands are in no way self-sufficient – the vast majority of goods, including essential foods, are imported. People are exceedingly vulnerable to shocks in supply chains caused by economic or digital disruptions, extreme weather events, or most recently the COVID 19 pandemic.

As concerns specifically **climate hazards** (see figure 2 below), the most damaging to Cabo Verde are estimated to be droughts, floods, land slides, forest fires, sea-level rise, coast and beach erosion and epidemics. To this add the non-climate related hazards such as volcanic and seismic activities. From a territorial perspective, research concludes that about 80% of the archipelago's territory has a high susceptibility to drought, especially the shallow islands and São Vicente.

The definition of **vulnerable groups** in the face of climate change as well as the connections between gender and climate policy and planning are not yet sufficiently established or institutionalised in Cabo Verde. The highest climate change vulnerability tend to lie with the cities, the shallow islands, the steep agricultural and forest areas, the coast lines. Population and assets are concentrated in coastal cities. Considering Cabo Verde's small and dispersed geographic area, disasters can take country-wide proportions.



Figure 2: Map of the susceptibility to selected climate hazards in a high risk scenario, per island, 2014/2021



Source: Methodological pilote study for the production of a climate hotspots map, INGT/DNA, 2021 and Comprehensive Hazard Assessment and Mapping in Cabo Verde, UN Joint Office and Government of Cabo Verde, 2014. The documented climate hazards are: beach and coast erosion (*erasão das praias e erosão costeira*, yellow and red resp.), floods (*cheias*, dark blue), heavy rains (*precipitação*, light blue), land slides (*movimento vertente*, brown), forest fires (*incêndio florestal*, pink), droughts (*seca*, orange). In black, the names of the islands, and the names and administrative limits of the 22 municipalities.

Since Cabo Verde's ratification of the UN Framework Convention on Climate Change (UNFCCC) in 1995, these climate vulnerabilities have been studied and are being monitored. Although limited in resources, the Government has since spared no efforts to reduce the Nation's overall vulnerabilities and exposure to disaster and to cope with climate change, as can be seen by the following selection of milestone documents produced under the auspices of the Ministry of Agriculture and Environment:

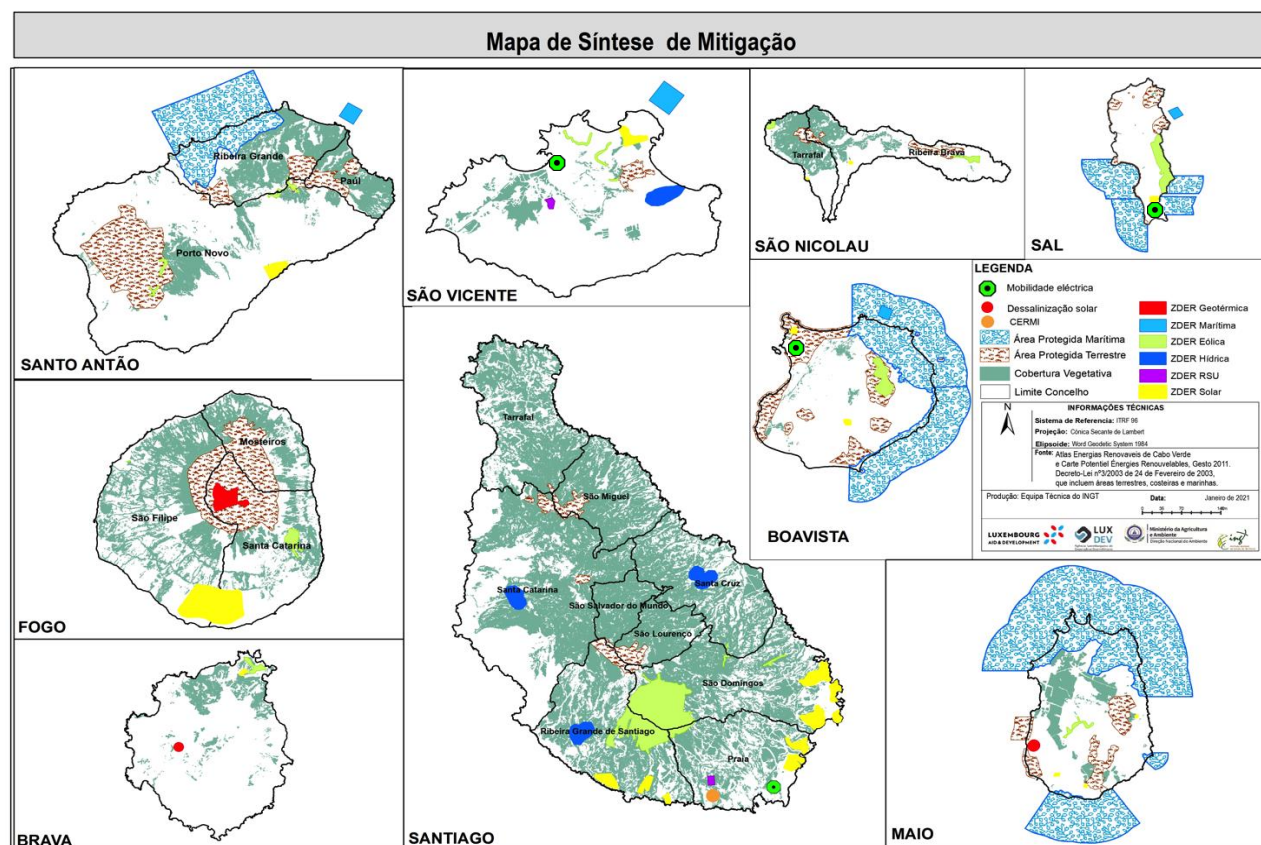
- First (1994 – 2004) and Second (2004-2014) National Action Plan for the Environment;
- First National Inventory Report on GHG (1995), 20 years after national Independence;
- First (2000), Second (2010) and Third (2017) National Communication (NC) to the UNFCCC;
- First National Programme of Action for Adaptation to Climate Change (NAPA) 2008 – 2012<sup>4</sup>.

The Government has also undertaken efforts to reduce its carbon dependence and shift its energy generation from fossil to renewable sources, as will be exposed in the following pages. This stems from the fact that the country is endowed with a high potential for exploiting renewable energies (see Figure 3 below). Disposing of a comprehensive network of terrestrial and maritime protected areas and biosphere reserves, the country also aims to mobilise its potential for sequestering carbon naturally, in its ocean, forests, wetlands and soils.

<sup>4</sup> based on the Sectoral Climate Vulnerabilities and Adaptation Studies undertaken in 2007.



Figure 3: Map of areas potentially reducing GHG emissions through deployment of renewable energies and through natural carbon sequestration in vegetative cover and protected areas, per islands, 2021.



Source: Methodological pilote study for the design of a climate hotspots map, INGT/DNA, 2021. ZDER = special zone for the development of renewable energies (RE). The documented areas with GHG reduction potential are: Praia, São Vicente, Sal and Boavista municipalities with the deployment of electric vehicles, the CERMI - Centre for Renewable Energies and Industrial Maintenance, and the ZDER for solid urban waste (RSU); Brava and Maio with 2 solar desalination plants under development; the terrestrial and maritime protected areas, the vegetative cover on all islands but Sal. All islands have ZDER for either geothermal (red), ocean (light blue), wind (light green), hydro (Dark blue), solide waste (violet) or solar (yellow) energies. In black, the names of the islands, and the names and administrative limits of the 22 municipalities. For more details on the RE potential in MW per island see fig. 7.

## Box 2: Main climate related vulnerabilities of communities in Cabo Verde

**Agriculture:** Agricultural output, always precarious given soils and precipitation conditions, is exceedingly sensitive to a warming climate and increasingly unpredictable rain patterns frequently in torrential way. The sector employs some 15% of the population and is responsible for local food supply. While soils are naturally fertile due to their volcanic origin, fertility has been decreasing over time due to water and wind erosion, salt intrusion, weak vegetative cover and continuous use without proper replenishment of nutrients extracted by crops. Invasive species and plagues increase agriculture vulnerability. The sector that resisted best to the pandemic was the agriculture. Local food production continued;

**Food imports:** For more than 80% of their needs, Cabo Verdeans are dependent on imports of essential food; any disruptions for shipping, commodity supply, fluctuating international food commodity prices; and currency risks will have disproportionate consequences for Cabo Verde's food security and distribution and the capacity to meet basic needs;

**Energy: Fossil fuel imports and logistics:** While Cabo Verde is dependent on imports for virtually all its fossil fuel needs, the energy mix still heavily relies on them from transport to desalination to generator use whether in agriculture or in the health (hospital) system; disruptions to supply and prices – a likely prospect in a world more and more impacted by climate change and vanishing resources – are felt immediately and across communities. Linking Cabo Verde's islands with each other and with other countries – a challenge at the best of times – is extremely vulnerable to disruptions from climate change, pandemics, fossil fuel scarcity. Renewable generation is key, but these installations too have to be made climate-resilient (larger ports for reception of ever larger wind generators, batteries waste, extreme winds or no wind, *bruma seca*, corrosion of photovoltaic panels);

**Water:** Cabo Verde increasingly suffers from water shortage. The country must operate ever more desalination plants to meet its increasing water needs; yet those plants run heavy on energy use (10% of all the electricity consumed in the country);

**Urbanisation and Infrastructure:** Urban sprawl – often unplanned – has diminished habitats and essential ecosystem services. Recurrent droughts and worsening conditions in agriculture and fisheries have driven rural population into cities and the tourism employment or into exodus. It has also created massive challenges for the country's essential infrastructure (transportation, energy, water and sewage facilities, communications infrastructures in particular), which are further exposed by climate hazards. Building in a more resilient, with lower land- and energy footprints, while keeping up with the housing supply and prices, is the challenge;

**Sea-level rise:** The geomorphological characteristics of Cabo Verde's islands define a set of landscapes, where lowlands in the coast stand out; this makes coastal communities, economic operations and infrastructure particularly vulnerable to a possible rise in sea level associated with extreme and adverse climate events, as are cases of storms with high winds, heavy rains and tidal waves; the country is already witnessing loss of coastal territory due to these phenomena;

**Public health:** COVID 19 has put Cabo Verde's public health system and finances under enormous stress. While the relationship between climate change, biodiversity and infectious disease is complex, it is clear that the loss and degradation of natural habitats undermines the web of life and increases the risk of disease spillover from wildlife to people. The country's record on combatting a range of infectious diseases such as cholera, Zika, dengue as well as yellow fever, and malaria is exceptional. Nevertheless, Cabo Verde is less prepared than other countries to withstand future epidemic and pandemic outbreaks, not least for its high exposure to international visitors, on whom the current economy depends;

**Vulnerable groups** can generally be defined as groups of individuals exposed to poverty, or low-income individuals. Climate vulnerable groups considers groups and communities that have adversely been affected by climate hazards, and having limited ability and income to recover by themselves. This would include women, the elderly and the youth or persons with disabilities. Women are responsible for the day-to-day running of households and basic services, mainly in rural areas. They suffer from the lack of (or limited) access to water, land and energy in rural areas and increasing fragility in supply chains. Women and youth are underrepresented in decision making bodies, overrepresented in unemployment and emigration and have lesser patrimonial or financial resources;

**Digital threats:** As an island state, Cabo Verde is hyper-dependent on swift, steady and 24/7 available digital and satellite services feeding needs from education to transport to early-warning systems. Extreme weather events can have seriously debilitating impacts on societal and security-related functions;

**Financial resilience:** Cabo Verde is both considerably indebted and highly dependent on non-domestic financing and foreign direct investment. Increasing vulnerability to and costs of climate change escalate financial exposure and affects the financial resilience of the country.

## Building resilience

Cabo Verde follows the IPCC definition, describing resilience as “the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation and the capacity to adapt to stress and change.”

Cabo Verde’s Disaster Risk Reduction Strategy (2018) defines “**resilient communities** as the populations and human settlements informed about the risks, aware and able to anticipate, prevent, prepare, face and recover from disasters; competent communities, capable of leading and taking risk reduction initiatives at local and community level; societies capable of organising cooperation within neighbourhoods and communities, of reinforcing self-help and of encouraging solidarity and mutual support, of cultivating disaster preparedness.”

Addressing these vulnerabilities is a key national interest of Cabo Verde and lead element of Cabo Verde’s climate ambition. Building resilience is a task that touches on economic, social and environmental aspects all at once. Cabo Verde needs a *resilient infrastructure* that reaches all of its people with energy, clean water, basic health, emergency and education services. Cabo Verde needs *affordable public services*; that includes energy and water bills. While social rebates for poor households are available, costs for water and energy for Cabo Verde’s families are still high. Cabo Verde needs *land and agriculture management* that is responsive to and copes with diminishing precipitation, occasional and severe flooding, and increased soil and biodiversity erosion. Cabo Verde needs *state-of-the-art emergency plans* to manage shocks and crisis ranging from weather events to new pandemics, cyber-attacks, infrastructure collapse, and supply chain interruptions. Finally, Cabo Verde needs *inclusive and gender-sensitive strategies* to enhance the adaptative capacity of all of its communities and economic sectors, including food production and tourism.

Building resilience is not a one-off challenge but requires continuous efforts on planning, screening risks and performance, developing response measures, and working together across communities and institutions.

## Greenhouse gas emissions projections<sup>5</sup>

Cabo Verde has one of the lowest GHG emissions per capita in the world (0.99 tCO<sub>2eq</sub>/inhabitant in 2010), the burning of fossil fuels in electricity generation and combustion accounting for about 90% of total emissions. The comparably low carbon footprint aside, Cabo Verde has consistently worked towards transforming its economy from fossil to renewable energy (RE) sources. Under its first NDC, Cabo Verde spelled out a number of sector-wide and sub-sector-wide targets (RE penetration rates into the electric grid; reduction of cross-sectoral energy-demand; access to energy) while also committing to action-based targets (focusing on improvements of the country’s nine electricity grids, hardware installation, planning tools, and other ‘soft’ measures such as educational programs). While a number of contributions have yet to come to fruition – the first NDC had a time horizon until 2030 – several key milestones have been reached, especially concerning the creation of renewable-friendly regulatory and investment framework.

Regarding the evolution of GHG emissions and removals in Cabo Verde between 1995 and 2010 by sectors listed, the **energy sector** has contributed most to total emissions, reaching approximately **550 Gg of CO<sub>2eq</sub> in 2005**, the highest value of the series listed. In **2010, emissions had decreased by 1.2% compared to 2005.** The Agriculture, Forestry and Other Land Use (AFOLU) sector, more specifically **forestry, in 2005 and 2010 contributed to the net removal of CO<sub>2</sub>, at the tune of -238 Gg CO<sub>2</sub> in 2005 and in -237 Gg CO<sub>2</sub> in 2010,** corresponding to a decrease of 0.25% in 2010 relative to 2005.

In 2005, the transport subsector accounted for 55% of total CO<sub>2</sub> emissions in the energy sector, followed by the energy industries subsector with 33%. In 2010, the subsector energy industries accounted for 55% of total CO<sub>2</sub> emissions in the energy sector and transport accounted for 41% of total CO<sub>2</sub> emissions in this sector. The

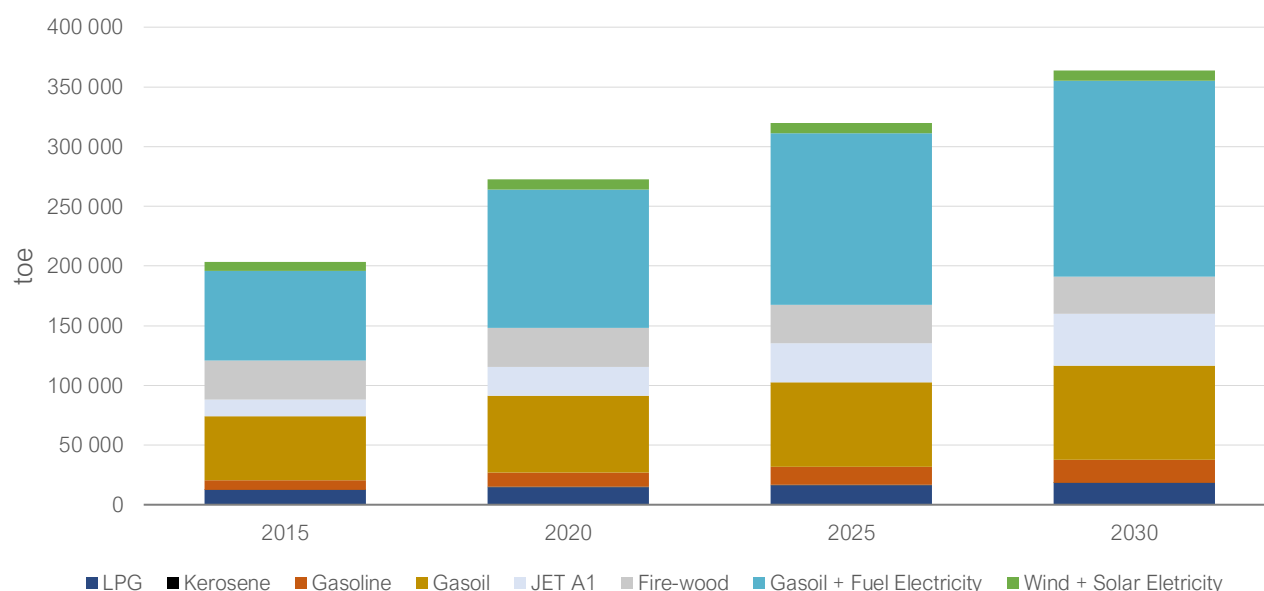
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<sup>5</sup> Appropriate physical numbers in this section have been rounded to the unit, for ease of reading. The data considered does not take the effects of the COVID pandemic into account.

transport sub-sector decreased by 27% of total CO<sub>2</sub> emissions compared to 2005, due mainly to the reduction in the number of domestic flights in Cabo Verde.

This said, emissions are expected to rise, in line with growing demand for energy and assuming business-as-usual (BAU) conditions (from energy mix as of 2019). The general energy demand in 2030 is calculated to reach approximately 363,836 toe, from an annual of 222,928 toe in 2019 (the impact from COVID 19 not yet taken into account).

Graphic 1: Total Energy demand: 2015, 2020, 2025, 2030 – Projected BAU Scenario (toe)



Source: DNICE (2020)

Emissions in energy demand (outside electricity) are expected to reach 500 kt CO<sub>2eq</sub> in 2030. Among the various subsectors, the transport sector presents the highest GHG emissions over the years, averaging approximately 373 kt CO<sub>2eq</sub>/year between 2020 and 2030. By 2030 the transport sector is estimated to produce 440 kt CO<sub>2eq</sub>.

Emissions also increase in the energy transformation category (electricity generation) from 280,320 tCO<sub>2eq</sub> in 2015 to 507,000 tCO<sub>2eq</sub> in 2030 (not yet adjusted for the COVID 19 pandemic).

In domestic energy, according to INE, in 2019, the most consumed fuel in urban areas is gas, around 81.2% of households, mainly in urban areas (93.2%), followed by firewood with 16.1%, particularly in rural areas (43.4%). The municipalities of Santiago, with the exception of Praia, register the highest consumption of firewood as a source of energy for cooking. By islands, the largest demand for firewood is concentrated on the island of Santiago, representing about 50% of the national demand. About 20% of households use wood as the main energy source for cooking. The vast majority (85%) of the wood used is collected mainly by women and only 13% is purchased.

The projected emissions (BAU and NDC) across sectors are shown in Table 3 and 4 (none yet adjusted for the COVID 19 pandemic).

Table 3: CO<sub>2eq</sub> emissions and removals, historic data up to 2010 and projections from 2010 onwards, in Gg, by sector by 2030, considering BAU scenario.

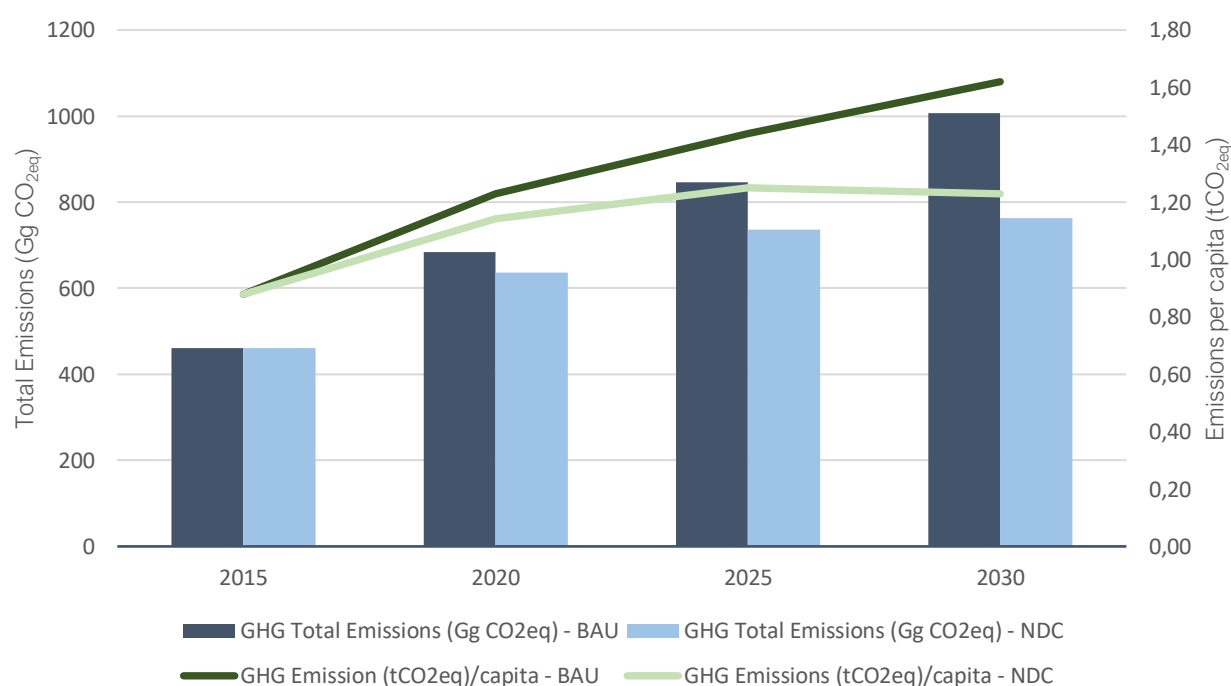
Sectors	1995	2000	2005	2010	2015	2020	2025	2030
Energy	234	300	549	542	516	719	868	1007
IPPU	0.35	0.51	1.35	3.37	3.44	4.00	4.96	6.51
AFOLU (incl. removals)	-96	-123	-130	-118	-118	-108	-105	-96
Waste	29	26	32	58	60	69	79	89
<b>Total GHG Emissions/Removals (Gg CO<sub>2eq</sub>)</b>	<b>166</b>	<b>203</b>	<b>453</b>	<b>485</b>	<b>461</b>	<b>684</b>	<b>847</b>	<b>1006</b>
<b>GHG Emissions (tCO<sub>2eq</sub>)/capita</b>	<b>0.43</b>	<b>0.47</b>	<b>0.97</b>	<b>0.99</b>	<b>0.88</b>	<b>1.23</b>	<b>1.44</b>	<b>1.62</b>

Source: Third National Communication, MAA-INMG (2017) up to 2010 and DNICE projections (Energy 2020-2030).

Table 4: CO<sub>2eq</sub> emissions and removals, historic data up to 2010 and projections from 2010 onwards, in Gg, by sector by 2030, considering NDC scenario.

Sectors	1995	2000	2005	2010	2015	2020	2025	2030
Energy	234	300	549	542	516	671	757	765
IPPU	0.35	0.51	1.35	3.37	3.44	4.00	4.96	6.51
AFOLU (incl. removals)	-96	-123	-130	-118	-118	-108	-105	-96
Waste	28	26	32	58	60	69	79	89
<b>Total GHG Emissions/Removals (Gg CO<sub>2eq</sub>)</b>	<b>167</b>	<b>203</b>	<b>453</b>	<b>485</b>	<b>461</b>	<b>636</b>	<b>736</b>	<b>764</b>
<b>GHG Emissions (tCO<sub>2eq</sub>)/capita</b>	<b>0.43</b>	<b>0.47</b>	<b>0.97</b>	<b>0.99</b>	<b>0.88</b>	<b>1.14</b>	<b>1.25</b>	<b>1.23</b>

Source: Third National Communication, MAA-INMG (2017) up to 2010 and DNICE projections (Energy 2020-2030).

Graphic 2: CO<sub>2eq</sub> total and per capita emissions considering BAU and NDC scenario.

Source: DNICE (2020)

The emissions data used are those from Cabo Verde's Third National Communication (NC) of 2017, meaning the latest available official data on emissions dates back to 2010 and projection from DNICE for 2020, 2025 and 2030. They will be updated in Cabo Verde's first biennial update report (BUR), to be released in 2022.



## CLIMATE AMBITION 2020-2030

Cabo Verde's update of its first NDC has been developed in consultation with stakeholders and is aligned with Cabo Verde's development objectives, on the one hand, and the objectives of the Paris Agreement, on the other hand. As a party to the Paris Agreement, Cabo Verde is committed to setting ambitious targets needed to enact change and remains wholly supportive of the Paris Agreement and to all of the responsibilities and actions outlined therein.

In submitting this NDC, Cabo Verde, as a small emitter of GHG, supports the call on all Parties to make their submissions, to ensure that their NDCs are in keeping with their contributions to global emissions and to their respective responsibilities under the Convention and to take actions that will result in the restriction of global temperature increase to 1.5°C above pre-industrial levels.

The newly submitted contributions are fair and ambitious, considering the national circumstances, such as the SDGs and poverty eradication, demographics, geography and insularity, climate, dependence on external stimulators. They will go substantially beyond the commitments put forward in Cabo Verde's initial NDC submission, i.e., in terms of scope, sector ambition, coherence between adaptation and mitigation, horizontal themes, including gender equality, and notably transparency.

The COVID 19 pandemic represents a moment of profound turmoil and disruption, causing a precarious economic downturn due to the drop in tourism and trade, and aggravating the country's economic vulnerabilities to climate change. Despite the challenge, however, if anything, this crisis will strengthen the determination of Cabo Verde and its people to take aggressive action to combat and adapt climate change.

## Key contributions of Cabo Verde to the Paris Agreement

Cabo Verde's new key contributions include:

### Box 3: Increasing Cabo Verde's 2030 climate ambitions

- By 2030, Cabo Verde commits to reduce economy-wide GHG emissions by 18% below the BAU scenario. Conditional on adequate international support, this reduction target may go up to 24% below the BAU scenario.
- The 2030 commitments are set with the long-term goal of achieving a decarbonised net-zero emissions economy by 2050. The island of Brava will be the first pilote for maximum decarbonisation by 2040.
- Key implementation targets focus on increased electricity generation from renewable sources, improved energy efficiency across sectors, the shift from fossil fuel-engineered transport to electrified transport and individual active mobility, enhanced resource rehabilitation and land mitigation measures.
- By 2030, Cabo Verde seeks to install core resilience functions and metrics, namely concerning low-carbon, affordable, gender-and disaster sensitive access to water, energy and essential public services and resilient infrastructures and equipments.
- For this purpose, Cabo Verde will elaborate a new National Adaptation Plan as part of its global climate change contribution, for submission to the UNFCCC by 2023, at the latest.
- To plan, manage and track progress, Cabo Verde will build a national climate governance system centered on inclusive consultations, institutional coherence and scientific excellence.



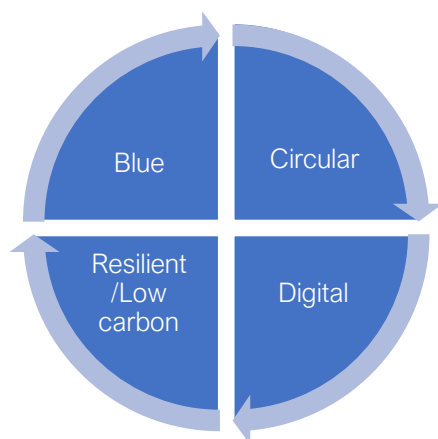
### Box 4: Mitigation impacts

Cabo Verde's mitigation measures are expected to yield annual GHG emission reductions in the order of 180,000 tCO<sub>2eq</sub> to 242,000 tCO<sub>2eq</sub> (18% to 24% below BAU, incl. LULUCF) by 2030

The 2030 Climate Ambition contributions respond to the development objectives as included in Cabo Verde's *Ambição 2030* (National Development Plan Ambition 2030), which in turn is designed to implement, in three stages over the next 10 years, the SDGs and, subsequently to align with the NDC. The main pillars of the development **Ambition 2030** are improved well-being and resilience, reduced social and territorial inequalities and environmental injustice, energy transition, circular, blue, digital economies, sustainable tourism, productive agriculture.

Within the framework of Cabo Verde's *Ambition 2030*, the country is committed to promoting an inclusive, diversified, circular, resilient and low-carbon economy.

Figure 4: Main concepts for Cabo Verde approach on economic development



For the elaboration of the present NDC, the current 5 years Strategic Plan for the Sustainable Development of Cabo Verde (PEDS I 2017 – 2021) was used as a reference. For the achievement of the *Ambição 2030*, two new 5 years PEDS will be designed, and aligned with the NDC.

It is important to realise that Cabo Verde's mitigation and adaptation commitments do not stand in isolation from each other and that they transcend the boundaries of climate change policymaking proper. The climate crisis is as much a resources and livelihoods crisis – diminishing or threatening access to clean water and food – as it is a social crisis.

Similarly, Cabo Verde's mitigation commitments directly yield a range of significant adaptation and resilience benefits, and vice versa. Energy sourced from renewables means enhanced energy security for Cabo Verde across islands as well as self-relied access to clean water. These in turn provide climate resilience for families and communities, urban and rural, incentivises the production of local farming productions; it also considerably improves the livelihoods of those households living in poverty.

Conversely, many adaptation measures directly yield mitigation co-benefits. Cabo Verde's forests, soils and coastal wetlands are important carbon stocks, and all measures directed at protecting and enhancing these ecosystems – meant to reduce erosion, improve or protect against flooding and salinisation – also maintain and improve the country's carbon sink capabilities. Efforts are ongoing to improve the understanding of – and quantify, where possible – the specific mitigation co-benefits of Cabo Verde's adaptation actions planned.

## Information necessary for clarity, transparency and understanding (ICTU)

Time frame	Cabo Verde's updated NDC covers the timeframe 1 January 2021 through 31 December 2030.
Scope	Climate change mitigation and adaptation. Climate mitigation target: Economy-wide, net domestic reduction target.
Sectors and gases covered	<p><b>Sectors</b></p> <ul style="list-style-type: none"> <li>• Energy</li> <li>• Industrial processes</li> <li>• Agriculture</li> <li>• Waste</li> <li>• Land Use, Land-Use Change and Forestry (LULUCF)</li> </ul> <p><b>Gases</b></p> <ul style="list-style-type: none"> <li>• Greenhouse gases included: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O and HFCs</li> </ul>
Target and reference indicator	<ul style="list-style-type: none"> <li>• At least 18% below BAU by 2030 and 24% below BAU in a conditional scenario (single-year target).</li> <li>• BAU scenario starts in 2013.</li> </ul>
Methodologies and Metrics	<ul style="list-style-type: none"> <li>• <b>Methodologies:</b> All mitigation commitments will be accounted for on the basis of the 2006 guidance of the Inter-Governmental Panel on Climate Change 2016 (IPCC 2016), including the guidance on wetlands (IPCC 2013), applying relevant default data (tier 1) or better (tier 2 and tier 3), once robust data is available.</li> <li>• <b>Metrics:</b> Global Warming Potential on a 100 timescale in accordance with IPCC's 5<sup>th</sup> Assessment Report.</li> </ul>
Consultations	<p>The preparation was led by the National Directorate for the Environment in consultation with stakeholders.</p> <p>Consultations were carried out between July 2020-January 2021 (mainly on-line due to COVID).</p>
Implementation	The Government of Cabo Verde will adopt an NDC Implementation Roadmap to set out institutional responsibilities, relevant governance frameworks, milestones, and precise delivery targets for the specific contributions and actions outlined in this NDC. The process will be part of Cabo Verde's National Enhanced Transparency Framework (ETF) foreseen in the Paris Agreement.
Fair and ambition	The updated first NDC is considered fair and ambitious in the framework of the global response. Despite its low emissions profile and its position as a highly vulnerable SIDS, Cabo Verde commits to a substantial, economy-wide reduction target. While ambitious in purpose, the NDC contributions are socially inclusive, cross-cutting in nature, and tailored to benefit Cabo Verde's most vulnerable people in particular. The country ambition contributes towards achieving the objectives of the Paris Agreement, including curbing the rise in global emissions to 1.5 °C above pre-industrial levels.
Other	The information provided may be subject to revision following the release of Cabo Verde's first biennial update report (BUR), planned for 2022.



MITIGATION

CONTRIBUTIONS



## Energy<sup>6</sup>

Energy is a transversal sector on which the rest of the economy depends upon. A key priority for Cabo Verde is to secure access to affordable energy for 100% of households. Furthermore, growing electricity demand (see overall growth expectation in Table 5 and Figure 5 below) can be met with a combination of improved energy efficiency (EE), controlled losses and additional RE sources, plus storage systems that will make Cabo Verde's energy system more reliable. The benefits will be felt across the economy from agriculture, desalination and irrigation; to the small-medium-enterprises sector, starting by the fishing industry that requires constant ice production; to transport permitting the switch to lower carbon electric engines; to the residential sector and the tourism sector, which consumes 20% of the electricity supply.

Table 5: *Electricity demand growth rates in a BAU scenario (GWh)*

Scenario	2017	2020	2030	2040
Business-as-Usual scenario	490	625	843	990

Source: *Electricity Sector Master Plan, 2018*

In recent years, Cabo Verde has embarked on an ambitious low-carbon energy transition. A milestone for the electricity sector was the adoption in 2018 of the **Electricity Master Plan** (EMP 2018–2040). It lays out the groundwork for the adoption of new policies to encourage the development and investment of domestically available RE sources to reduce their dependence on imported fossil fuels. This plan pays specific attention to the modernisation of the electricity grid with the multiple aim of stabilising the networks, reducing distribution losses, reducing electricity prices and price volatilities, and expanding access to electricity for citizens. The implementation is particularly challenging because the archipelago depends on different networks working side by side, but each on its own.

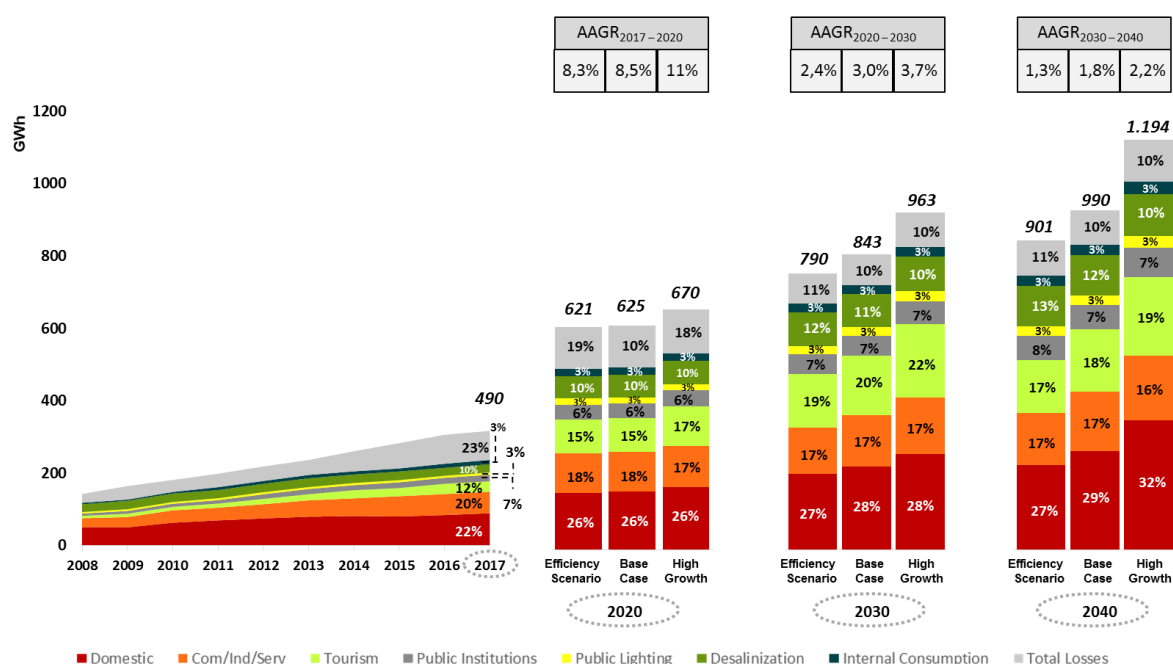
Cabo Verde is an island country with a high external energy dependence, both for energy production and transportation, since it needs to import the most used fuels, namely petroleum products and their derivatives. Biomass consumption is mainly focused on firewood in rural areas and the outskirts of cities for food preparation. RE sources are mainly wind and solar, with hydropower, wave, geothermal, waste and biomass sources playing almost no role in Cabo Verde's energy matrix. With respect to electrical energy, the vast majority are produced from thermal power plants using diesel and fuel oil. In 2019, before the economic and touristic lockdown due to COVID, on average 18.4% of the domestic electricity production was renewably sourced, with Santiago, Sal, Sao Vicente and Boavista leading the way.<sup>7</sup>

As can be seen from Figure 5 below, in 2017, Cabo Verde recorded a total electricity demand of 490 GWh. The baseline (BAU) scenario estimates that the country will achieve total demand of 625 GWh, 843 GWh and 990 GWh in 2020, 2030 and 2040, respectively. The expected average growth rate for the whole period 2018-2040 is approximately 3% compared to 7.5% between 2000-2017 (the mid- and long-term impact of COVID 19 not yet calculable). Up to 20% of that volume would be consumed by the tourism sector, 10% for desalination. Electricity losses would have been reduced from 23% today to 10% in 2030. Most of the incremental renewable capacity would be solar and wind. To achieve this, the installation of a pumped storage facility on Santiago island is indispensable and planned for 2023-2026.

<sup>6</sup> These data do not include pandemic COVID's effects on energy demand.

<sup>7</sup> <https://www.energiasrenovaveis.cv/copia-estatisticas>

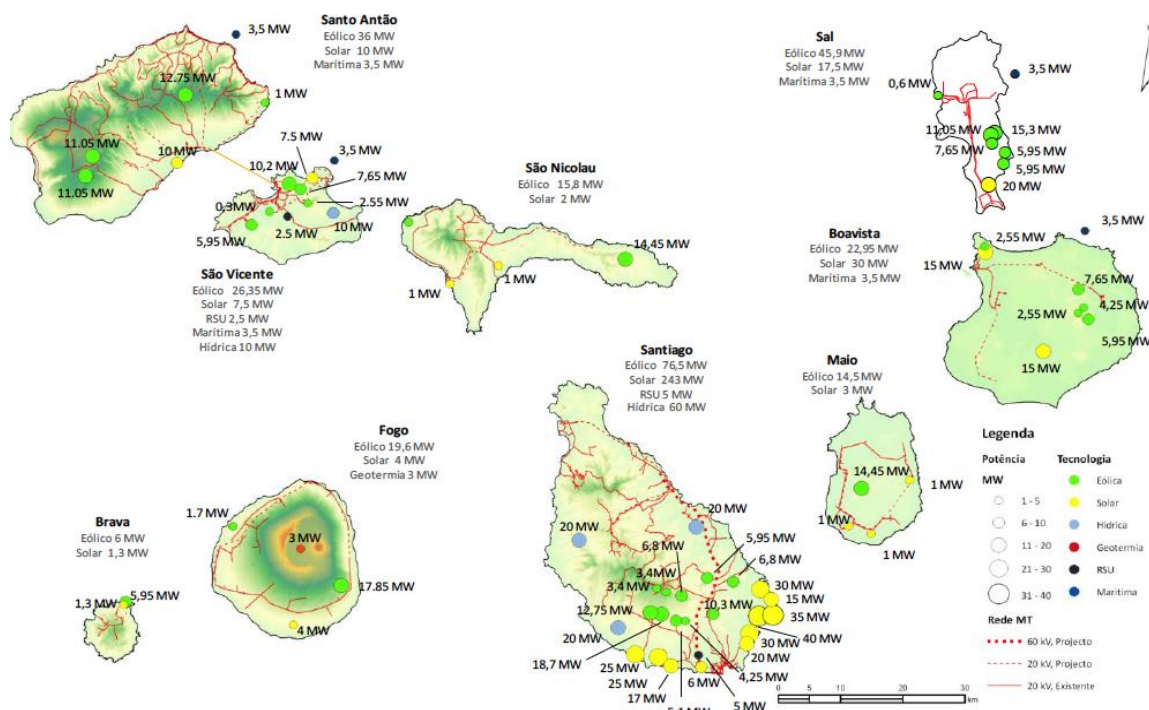
Figure 5: Historical evolution of electricity demand and expected electricity demand for 2020, 2030, 2040, per sector and in different scenarios.



Source: Electricity Master Plan, 2018. The different scenarios considered before the COVID pandemic are: an efficiency scenario (the left column for the projections 2020, 2030 and 2040), a BAU scenario (the middle column), and a high growth scenario (the right column).

In this context, RE is the opportunity for Cabo Verde to solve, in a structural way, energy sector related problems, reducing energy costs and prices, minimising uncertainty and exposure to international fuel prices. The lower costs will allow the implementation of a set of active policies to reduce losses, ensuring that the cost of energy is shared by all who benefit from it, while safeguarding those with the weakest economic conditions. With the constant technology innovation, there are numerous new ways of producing RE. Some of these new forms are already used or piloted in Cabo Verde, including a tidal wave energy installation. The map below gives an illustration of the RE potential.

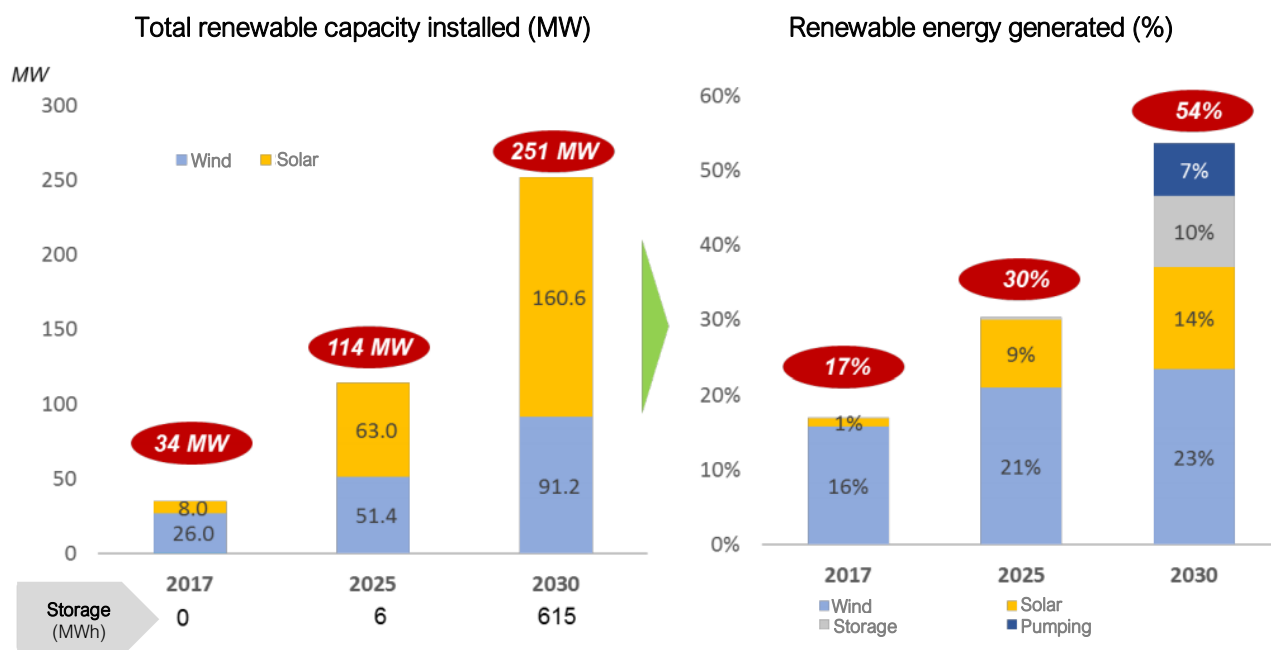
Figure 6: Map of renewable energies potential per islands.



Source: Atlas of Renewable Energies, MICE, 2014

Cabo Verde's NDC measures towards RE are based on Electricity Master Plan figures and growth projections as it can be observed in Figure 8 below.

Figure 7: Total renewable capacity installed (MW) and renewable energy generated (%)



Source: Electricity Master Plan, 2018.

The proposed mitigation strategies in this updated NDC are intended to accelerate efforts made by the international community to combat climate change in a context of sustainable development. Cabo Verde's commitments for 2030 will also mark an important milestone towards the **zero-emissions target of 2050**.



The NDC energy goals build on the following national plans:

- Sustainable Energy Action Agenda for All, 2015;
- Electricity Sector Master Plan 2017-2040 adopted in 2018;
- Electric Mobility Policy and Action Plan, adopted in 2018;
- National Programme for sustainable Energy, 2017-2021, adopted in 2018.

Cabo Verde's contributions in this sector for 2030 are as follows:

### **MITIGATION CONTRIBUTION #1: REDUCING ENERGY INTENSITY AND FOSTERING ENERGY EFFICIENCY**

Cabo Verde undertakes to reduce energy demand by 7% below BAU projections through change in the energy mix and energy efficiency improvements. With adequate support, the reduction commitment can be increased to 15% below BAU projections. To contribute to the target the following measures are planned:

- Diminish overall **electricity** consumption by 7% in 2030 compared to the BAU scenario; with adequate support, this reduction target could be increased to 15%;
- Decrease total **electricity losses** to 10% by 2030, from a baseline of 23% in 2017;
- Promote farm **biogas** units as a means to recover nutrients and improve soils, facilitate farm hygiene and health, substitute wood or fossil gas for cooking or electricity for lighting;
- Modernise and strengthen the electricity transmission and distribution **networks**;
- Accelerate **smart grid** development and mass use of smart meters;
- Enhance **energy efficient** public lighting, appliances, buildings and develop specialised loan/credit products for energy saving or energy efficient companies and investments such as solar water heaters, air conditioners, buildings and isolation materials, EE appliances etc;
- Integrate adapted technical specifications and criteria into the Building Code for **low-carbon, low-tech, passive, bioclimatic, self-reliant constructions**, which can be kept cool, safe and healthy and resist extreme weather events without the increased use of electricity or imported materials (local new and recycled construction materials, vegetalisation, density-size-orientation, exposure to wind and sun, natural light, shading and ventilation, on-site composting/gardening...).

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**Lead Agency:** Ministry of Industry, Trade and Energy

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## **MITIGATION CONTRIBUTION #2: INCREASING RENEWABLE ENERGY TARGETS**

Cabo Verde undertakes to make a major shift towards the low-carbon economy by increasing the RE share in the electricity supply (today at 18.4%) to 30% (in 2025) and up to 50% in 2030. With adequate support, the RE target may go up to 100% by 2040. Cabo Verde also undertakes to secure on-grid or off-grid electricity supply across nine islands and to reach 100% access to electricity for all consumers by 2023. To contribute to the target the following policies and measures are planned:

- Increase **wind** energy capacity by installing 10 MW wind farm for Santiago by 2022 and 60 MW by 2030;
- Increase **solar** photovoltaic energy by installing an additional 150 MW by 2030; the following initial steps are under development:
  - 10 MW photovoltaic solar power plant for Santiago (start by 2022) ;
  - 5 MW photovoltaic solar power plant for Boa Vista by 2022 ;
  - 5 MW photovoltaic solar power plant for Sal by 2023 ;
  - 5 MW solar photovoltaic plant for São Vicente by 2023 ;
  - 4 photovoltaic solar parks in the islands of Santo Antão, São Nicolau, Maio and Fogo by 2025 ;
- Seek the installation of first energy production pilot project out of **waves** by 2027;
- Implement a **pumped storage plant** on the island of Santiago by 2026;
- Increase RE storage capacity by installing **storage systems** in Brava, São Nicolau, Boa Vista and São Vicente by 2025, guaranteeing the energy needs of these islands;
- Implement **micro-energy** network in rural areas: construction of micro-networks based on renewable sources in the locality of Chã das Caldeiras, Fogo Island by 2022;
- Install of a waste-to-energy **biogas** landfill in Santiago by 2025 and construction of 8 biogas plants across islands by 2030;
- Operationalise the Action Plan for **Gender and Energy** by 2030 and support the emergence of local businesses and promote economic opportunities for women particularly in the field of RE to represent at least 20 % of the workforce in 2030;
- Promote employment opportunities for the **youth** in the field of RE;
- Introduce first **solar desalinisation plants** at scale, with the first plant to be commissioned in 2021 (Furna, Brava Island);
- Implement the Brava Sustainable Island Project (see box 5 below).

### Box 5: Cabo Verde low-carbon flagship project: Brava Sustainable Island



In 2018, the Government of Cabo Verde elaborated a pioneer energy transition plan for the island of Brava<sup>8</sup>, which is home to 5 000 Cabo Verdeans. This endeavour was subsequently operationalised and approved via the Municipal Strategic Plan for Sustainable Development. The Brava Sustainable Island Project aims to leverage proven technological advancements and best practices to make the island a territory where most of its energy needs are provisioned through renewable sources (67% by 2030). With renewable energy as a catalyst, the project shall aim to foster low-carbon, resilient economic and social development across all sectors. Wind and

solar power plants, including smart grid storage, are planned to be installed, the grid infrastructure extended and upgraded, sea-water desalination solar-powered. Energy efficiency is high on the agenda starting with buildings, appliances and public lighting. Road and sea mobility are planned to be electric.

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**Lead Agency:** Ministry of Industry, Trade and Energy.

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<sup>8</sup> <https://peds.gov.cv/caboverdef4dev/wp-content/uploads/2018/12/Ennergy-Sector-web.pdf>

## Transport

The transport sector for its part remains a major consumer of fossil fuels as motor vehicles: in passenger cars, sea and air vessels, burn gasoline, diesel or jet fuel in internal combustion engines.

Cabo Verde's Government has identified the promotion of active and electric mobility as a strategy for reducing road transport-related GHG emissions as well as increasing the share of RE storage and penetration. The country has recently received international support for the implementation of its first nationally appropriate mitigation action (NAMA) 'Promotion of Electric Mobility'.

Maritime and air transport cannot easily switch from fossil fuel to electric. However, maritime transport accounts for a large percentage of national GHG emissions in SIDS. At the same time, there is great reliance on international maritime transport to meet the needs of the population, which often represents a high cost factor. Measures for climate protection in maritime transport can create synergies to reduce GHG emissions and help lower supply costs. Aware that Cabo Verde needs support to meet these ambitious mitigation targets, the country seeks to join regional and international initiatives promoting low-carbon maritime transport, starting along the North-West African routes.

Cabo Verde's contributions in this sector for 2030 are as follows:

### MITIGATION CONTRIBUTION #3: LOWERING THE CARBON INTENSITY OF MOBILITY

Cabo Verde undertakes to electrify at least 25% of its land-borne transport fleet (new vehicles) by 2030 by resorting to RE sources. Conditional on adequate international support, the shares per vehicle category could increase to 50% in favor of public, collective high-passenger load vehicles. Cabo Verde will also undertake measures to advance carbon-free active mobility and sustainable maritime transport. To contribute to the target the following measures are planned:

- Reduce the necessity of high-carbon mobility through **urban planning and digitisation** (car-free areas, cycling and pedestrian lanes, functional mix and spatial density to bring living and working closer together, incentives for home-office, apps for car-sharing and taxi hailing ...);
- Create secured and attractive home-work urban **cycling and walking** networks with bicycle repair and equipment businesses in Praia and Mindelo, to promote low carbon mobility, convivial cities and local youth employment;
- By 2023, quantify the national GHG reductions possible by swifiting to lower carbon **international maritime transport** (i.e.sails or solar vessels, engine efficiency improvement, lower carbon fuels, optimise logistics and operating processes or avoidance strategies etc.) and develop a policy framework and national action plan as a measure under the International Maritime Organisation. Encourage the international community to bring ocean transport decarbonisation technologies to scale;
- By 2023, finalise a policy and targets on reducing GHG emissions in **domestic maritime transport** (passenger-, cargo- and tourist- vessels, ports, fuel storage, supply chains, logistics), based on a detailed feasibility assessment;
- **Electrify the vehicles fleet** with a priority for public, collective, high-passenger load, duty and commercial vehicles over private, individual, low-passenger load vehicles, so as to make this mobility shift socially inclusive and create public adherence and local jobs;
- By 2050, fully replace all residual thermal vehicles (gasoline/diesel) for Electric Vehicles (EV);
- Implement the NAMA "Promotion of EV in Cabo Verde" and the Electric Mobility Action Plan involving:
- By 2025, establish the procurement rules for the acquisition of 100% EV by institutional entities and have at least 50% of EV in the new acquisition of urban collective transport (see table 5 below);
- Gradually install of a wide-reaching network of recharging stations, with priority to public, collective, grouped charging stations at bus/taxi/company stations benefiting the greatest number of users,

complemented by private stations; starting in the main urban centers of Cabo Verde and along strategic road corridors;

- By 2030, the national public recharge infrastructure is fully implemented;
- By 2030, the public administration's vehicle fleet is fully electrified.

*Table 6: National goals for the new acquisition of electric vehicles by category by year*

Vehicles	2021	2025	2030
<b>Public and duty vehicles:</b>			
Buses for public transport	25%	50%	75%
Minibus (Hiace)	2%	16%	35%
Other buses	0%	10%	25%
Medium trucks	0%	15%	35%
Heavy trucks	0%	0%	25%
Taxi	2%	50%	100%
<b>Private vehicles:</b>			
Passenger cars	5%	35%	70%
Two wheels	2%	25%	50%

*Source: Carta Política de Mobilidade Elétrica. Resolution 58/2018.*

**Lead Agencies:** Ministry of Internal Administration; Ministry of Maritime Economy and Ministry of Industry, Trade and Energy

## Responsible tourism and circular economy

Art. 2 of the Paris Agreement aims at “strengthening the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty”. So far, mitigation actions are mostly concentrated at project level, targeting some sectors that are considered to be classic mitigation sectors, such as energy, and targeting emissions and removals within national boundaries only. As ambition increases, a more comprehensive approach to climate action is needed, focusing on transformational change, value chains and cross-border movements.

This is where the responsible tourism and circular economy approach become increasingly relevant.

A flourishing tourism sector is vital to economic prosperity of the Nation and its coastal communities. The continued viability of this sector remains at risk from climate change, pollution, urbanisation, and ecosystem degradation. Yet tourism also contributes to these threats.

Air and boat travel to islands is carbon intensive. Emissions from international flights are not taken into account in the goals that are set by countries in international treaties like the Kyoto protocol or the Paris Agreement. However, to make this industry more climate resilient and to ensure continued business under climate change uncertainty, Cabo Verde encourages the international community to do its share in reducing the carbon intensity of air and sea transport. On its territory, Cabo Verde will do its share to adapt the coastal and marine tourism industry to local climate threats and to enhance its climate and environmental benefits.

The tourism sector is capable of generating a lot of economic benefits, including positive impacts on the local economy and small businesses. Traditional tourism is organised in a linear way and thus may well lead to exploitation of natural resources, especially on islands that are primarily accessed by tourists through air travel. These various negative impacts that the tourism sector can cause, underline the need to plan, manage and monitor tourism well.

The circular economy has been proposed in recent years as a model that can help make tourism more sustainable. The tourism sector has the capacity to combine economic, social, cultural and environmental dimensions of sustainability and contribute to their mutual improvement. The circular tourism sector refers to its ability to trigger and stimulate circular flows with the aim of aligning the tourism sector and sustainable resource management.

Climate change is closely linked to linear extraction and consumption, whereby high global consumption of materials drives high energy demand and, which in turn drives GHG emissions as well as vulnerabilities to supply chain disruptions. The concept of circularity leaves the linear “take-make-dispose” approach behind and is based on maximising the utilisation of materials as a resource, extending the life of products and recovering valuable materials for new products (cradle-to-cradle).

The NDC commitments for this sector are based on the objectives of the following national plans:

- National Development Strategy Ambition 2020-2030;
- Grand Strategic Plan Options for sustainable tourism development (GOPEDS) 2018-2030.

Cabo Verde’s contributions for 2030 are as follows:

### MITIGATION CONTRIBUTION #4: SHIFTING TOWARDS RESPONSIBLE TOURISM AND CIRCULAR ECONOMY

Cabo Verde undertakes to strengthen sustainable tourism as a factor for local empowerment and economic development, ensuring climate resilience and diversification and increasing decent employment. International and national efforts combined seek to reduce overall GHG emissions from tourism by 20% per visitor/day by 2030. Cabo Verde undertakes to develop a roadmap for the phased transition to a circular economy for the



years 2022 to 2040, by industry and municipality. The circular economy aims to contribute to climate protection and adaptation to climate change. To contribute to the target the following measures are planned:

- By 2025, evaluate the feasibility and engage with relevant international partners in order to **lower the carbon footprint of air travel**. This could include issues such as low-carbon jet fuels, lighter aircrafts, carbon compensation schemes or credits launched by departure countries, international air companies or hotel operators for the benefit of Cabo Verde, notably in the areas of climate preparedness of the local tourism infrastructures and regeneration of the local ecosystems tourism depends on;
- By 2025, develop a **national roadmap for responsible tourism in the circular economy**, in order to build a comparative advantage for the Cabo Verde tourism destination. The roadmap will define targets for the local contribution to reducing GHG emissions, per visitor/day by 2030, through strict reuse and recycling, banning single-use plastic; gutter and beach-clean ups, community and NGO work and tree planting activities for tourists etc. It will make it compulsory for mid-scale and large-scale hospitality providers to produce RE and implement EE measures, install sewage and waste water infrastructures, compost their organic waste, and recycle treated water, on-site. Large hotels are encouraged to offer low-carbon tourist activities and services, promote collective transport, active and electric mobility etc. Operators are expected to monitor and publically communicate their climate and resource footprints;
- Subordinate the **development of tourism zones and infrastructures** to more responsible forms of tourism and other land uses such as terrestrial and maritime protected areas, maritime domain, productive soils, water domain, areas of landscape, natural heritage and cultural values and other environmental constraints;
- Establish load limits per tourism development zone, take the **carrying capacity of the territory** into account and, spatially plan for cycling, walking, hiking infrastructures, sports and nature observation activities, electrified public transport;
- Promote sustainable tourism projects in **islands/areas that are currently out of tourism** development areas. To accomplish this, it is proposed to support interested municipalities and rural communities to develop responsible tourism plans, with features that allow them to rehabilitate cultural and architectural heritage, typical houses and landscapes, set up handicraft stores, propose cultural performances. Overall tourism revenue will be redistributed to all islands and reinvested into the climate preparedness of all local communities;
- Ensure links between agriculture, fisheries and the tourism sector to facilitate the **supply of hotels with local products** once the national food demand is satisfied. Develop the rural economy by strengthening the logistic chains from local producer to hotels (packaging, inter-island infrastructure, cold storage conditions and services, quality control, phytosanitary certification);
- Stimulate/incentivise **micro, small, and medium enterprises** (MSMEs), entrepreneurship and private investment in the area of ecotourism and strengthen the market for organic and traditional goods such as Fogo coffee, grog, goat cheese, salt and other fresh local goods, produced with traditional techniques;
- Encourage manufacturers and businesses, through fiscal incentives and capacity development, to design **circular products and services**, based on resources recovery, biodegradability and the true production costs, including environmental costs. Products which are simple, low-energy, easy to repair, passive should be favoured. This measure will be stimulated by adopting tariff and tax solutions that favour local producers and companies as opposed to international providers, and accompanied by the setting of indicators to monitor achievement. A flagship local product which can substitute imports is **salt**;
- Promote employment opportunities for the **youth** in the field of sustainable tourism through the enhancement of IT and language skills;
- Implement the **National Strategy for Disaster Risk Reduction** to ensure the safety of tourists, to prevent ship oil leaks and to make tourism infrastructures and ecosystems resilient in the face of climate change hazards.

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**Lead Agencies:** Ministry of Tourism and Transport; Ministry of Industry, Trade and Energy; Ministry of internal Administration; National Service for Civil Protection and Fire Service (SNPCB); Ministry for Infrastructure, Spatial Planning and Housing, National Institute of Territory Management (INGT).

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## Agriculture, forestry and other land-use

Main GHG emissions from agriculture, forestry and other land-use come from livestock farming (enteric fermentation and manure management), the burning of agricultural waste, and fertilizer use. **As a whole, however, the sector remains a net carbon sink due to forest cover.**

With afforestation and reforestation measures implemented since the 1920s, forest cover in the country has been raised from zero to about 85,000 ha or 21% of the national territory. The generally harsh environmental conditions have a negative impact on the density and growth of planted trees largely affecting forest productivity and quality. Still, forests assume essential environmental functions in Cabo Verde notably the protection of soil and regeneration of water (see the adaptation section below).

The production of wood and non-wood forest products also plays a significant role in local economies. The major forest products are fuelwood and charcoal, fodder and to a very limited extent some timber from the highlands of Fogo and Santo Antão. The fuelwood production volume is estimated at 268,000 tons/year.

Cabo Verde also boasts a number of coastal wetlands and inland reservoirs. These ecosystems deserve specific attention for their biodiversity and climate adaptation benefits (see below on adaptation) as well as for their climate mitigation (carbon sink) role. So far, no climate-specific policies have been introduced.

Cabo Verde's contributions in this sector for 2030 are as follows:

### MITIGATION CONTRIBUTION #5: FOSTERING THE NATURAL SINK FUNCTION OF ECOSYSTEMS

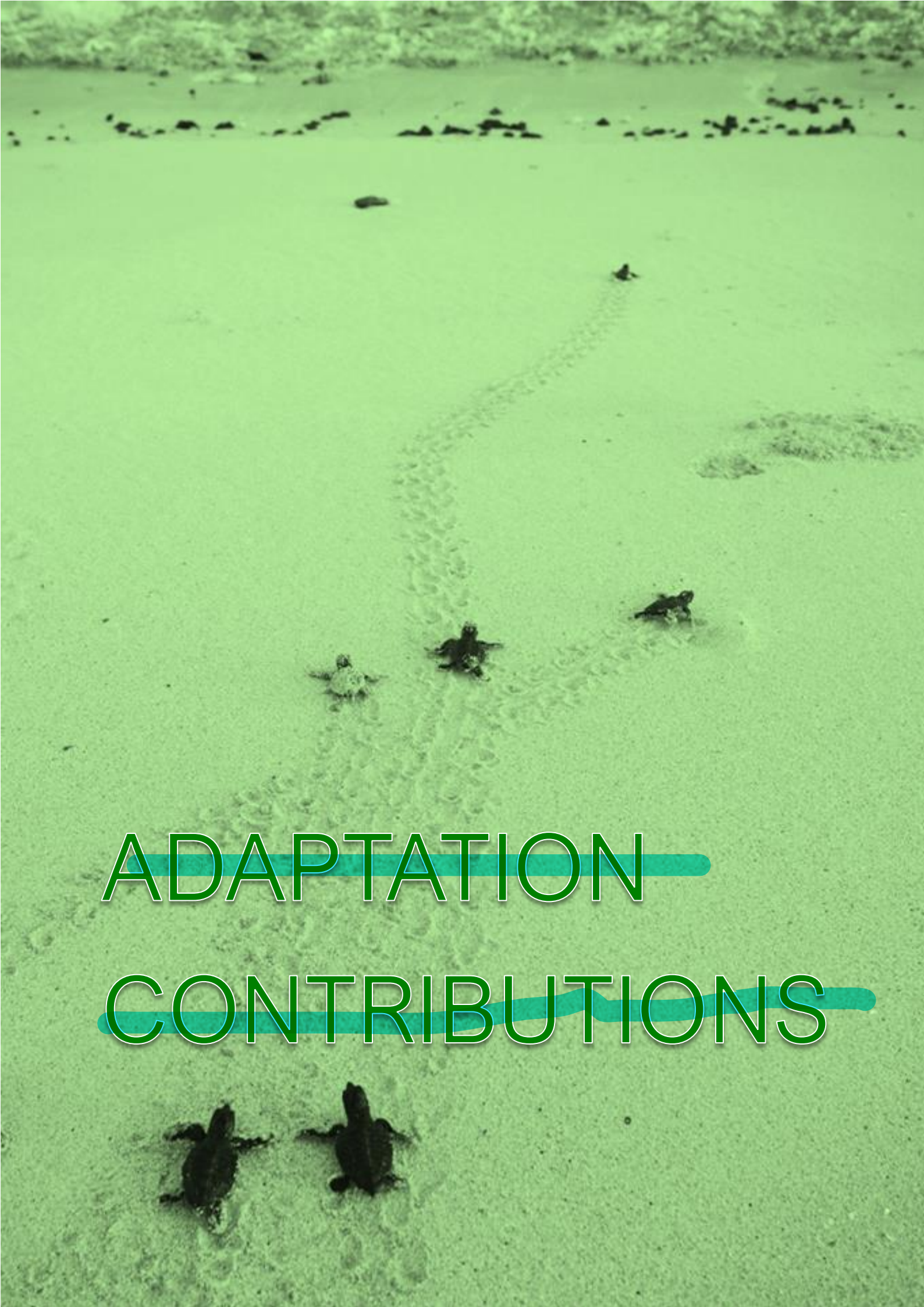
**Cabo Verde undertakes to increase, through reforestation and afforestation, forest areas by 2030 with resilient and preferably endemic and native species, to protect wetlands and to reduce/replace fuelwood. Cabo Verde undertakes also to prevent forest fires, which threaten livelihoods and ecosystems release large quantities of GHG. To contribute to the target the following measures are planned:**

- By 2030, commit to **afforestation** of 7 000 hectares with diverse, resilient, adapted species;
- By 2030, commit to **reforestation** of 3 000 hectares with diverse, resilient, adapted species;
- By 2025, delimitate **priority areas**, accounting for 6 000 hectares, which contribute to the conservation and protection of soils, wetlands, headwaters, ribeiras and water bodies and verify compatibility with other land uses;
- Elaborate **forest management plans and forest fire prevention plans** in Maio, Santo Antão, Fogo, Santiago and Boavista islands;
- Explore **ocean-based natural carbon sequestration**, which proves harmless to the maritime resources, coastal communities and sea ecosystems;
- Improve the collection and management of **data in the land sector** – including forest, soil, below-ground biomass and wetland data. Update and consolidate (GHG capture and storage potential, high carbon stock lands, ...) current forest, wetlands and soil inventory from 2012 improving access to and sharing of data and methodologies;
- Integrate forest, wetlands and soil information, including data and plans on conservation and restoration and data on forest fire breaks, into **municipal development plans**;
- Implement **in-situ and ex-situ conservation** measures in national plans/strategies for the conservation and enhancement of national seed and plant material in the face of climate change;
- **Empower interested communities and actors** (women, the elderly, the youth, ...) to safeguard natural resources, to become foresters, conservationists or entrepreneurs in the sustainably- and locally sourced products business: teas, aromatic herbs, essential oils, soaps, rum, mel, cheese, coffee, dyes, panos etc.

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**Lead Agency:** Ministry of Agriculture and Environment

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ADAPTATION

CONTRIBUTIONS



While adaptation measures were less prominently covered in Cabo Verde's initial NDC submission, with this update to Cabo Verde's first NDC adaptation actions and contributions take centre stage.

Cabo Verde's climate adaptation and resilience priorities are aligned with national, sectoral and local development policies, as included under the Cabo Verde's National Strategic Agenda for Climate Resilience 2020-2030, in the framework of the national Development Strategy Ambition 2030 (*Ambição 2030*) and the National Strategy for Disaster Risk Reduction. In addition to more specific adaptation targets presented below, Cabo Verde undertakes to:

- Submit, in 2022, a new National Adaptation Plan (NAP) to climate change to the UNFCCC, building on the NAPA and NDC adaptation objectives;
- Map and territorialise adaptation and resilience policies and actions supporting municipalities with the adoption of their adaptation and resilience plans until 2025.

According to the IPCC, adaptation and mitigation can be understood as complementary components of countries' response to climate change. Adaptation generates larger benefits to small islands when delivered in conjunction with other development activities. At the same time, there is often no clear boundary between adaptation and mitigation, which can overlap and which should be ideally mutually beneficial. This is why Cabo Verde favours, where possible, "green" **nature-based solutions (NbS)** over "grey", engineered, solutions. NbS mimic the characteristics of natural features (bio/geo-mimicry), but are enhanced or created by man to provide specific services such as wave energy dissipation and erosion reduction. They are more cost-effective and hold larger co-benefits than engineered solutions which demand permanent maintenance.

While adaptation is key to reducing risks and impacts of climate change, lack of ambition in mitigating climate change at the global level may result in a number of limits to efforts undertaken by Cabo Verde. These include the inability of coastal ecosystems to adapt to increased rates and extent of sea level rise; insufficient financial resources to implement required adaptation strategies; and lack of effective or affordable technologies to provide coastal protection from impending sea level rise and extreme events.

These **limits to adaptation**, be they of biophysical, economic, technological, institutional, and social and cultural nature, may result in loss and damage, that is, impacts of climate change that occur despite the best mitigation and adaptation efforts.

**Loss and damage** is addressed under Article 8 paragraph 1 of the Paris Agreement, recognising the importance that parties should give to averting, minimising and addressing loss and damage associated with the adverse effects of climate change. This includes extreme weather events and slow onset events.

All priority sectors are at risk of experiencing loss and damage as a result of increased climate impacts and limits to the ability to adapt to them. Potential loss and damage will result from salt water intrusion into freshwater supplies and agricultural land, frequent flooding and water shortages, which would lead to decreased food availability and security as well as permanent loss of territory due to sea level rise.

Rising water temperatures and sea water CO<sub>2</sub> concentration will result in declines in commercially important fisheries stocks, as well as impact tourism. Sea level rise and increased extreme climatic events will also result in loss of culturally and spiritually important landscapes and ultimately migration and displacement of coastal communities. Temperature increase will directly result in increased risk of deaths and injuries associated with extreme events, and indirectly through increased water borne and vector borne disease outbreaks.

Addressing the increased risk of significant levels of loss and damage due to climate change requires international support to implement a range of comprehensive risk management strategies.

## Water

Water is one of the resources by which the population is already impacted by the effects of climate change, considering the likely changes in rainfall models and the consequent water availability. There is a well-marked seasonality with dry and rainy seasons in the country, so that at the end of the dry period caudal, underground and surface water can be observed well below the average and even absence of water in some sources.

Groundwater is among the most important natural resources. The increasing use of groundwater, the reduction of potable water and the consequent demand, saltwater intrusion and contamination of coastal aquifers have become one of the most disturbing problems in the management of groundwater resources since they are considered strategic reservoirs. Fair access to water for all Cabo Verde people, combined with sustainable water use, reduction of water losses and increase of desalinisation through RE sources remain national challenges.

Despite significant improvements in the water and sanitation sector over the last two decades, Cabo Verde still faces major challenges. It relies on the energy-intensive process of desalinisation for clean water, which prevents the country to reduce the water carbon footprint. The capacity for the production of desalinated water has already reached 43,720 m<sup>3</sup>/day and is tending to increase due to the increase in demand, namely from the tourism sector. In the two main cities, Praia and Mindelo, more than 80% of the drinking water is currently produced by desalination. The limited water access leads to significant risks to the country's frail ecosystem, its biodiversity, plant coverage, land quality and agricultural production. The loss of organic matter and the decrease in water retention capacity cause the soil to deteriorate. The level of groundwater is dropping, the salinity of the soil is increasing due to the ingress of seawater and irrigated areas, especially in coastal areas, are decreasing.

In the area of sanitation and waste, the country has not yet fully achieved the objectives set out in the first NDC nor in the Water and Sanitation Strategic Plan (PLENAS: Plano Estratégico de Água e Saneamento) that sets up the objectives for the sector till 2030.

PLENAS aims at supplying 100% of households with access to public water network, in the amount of 40l/person/day with 5l/person-drinking water day for 2030 and at costs not exceeding 5% of family income. In the event that no connection to the household is provided, access to a water point should be at a maximum distance of 250 m.

The domiciliary network is still a privilege of the more affluent categories, who live in urban areas and divide the poor from the non-poor and the rural from the urban areas. The majority of the population lives in households with access to basic services: 64% live in households with running water, 80% with sanitary facilities and 80% connected to sewers or septic tank that dispose of solid waste through containers or cars and garbage (77%).

**The NDC commitments for this sector are based on the objectives of the following national plans:**

- PLENAS, Water and Sanitation Strategic Plan approved in 2015 and to be updated every 5 years;
- Water and Sanitation Code approved in 2015;
- ESGAS, Social and Gender Strategy for the Water and Sanitation Sector in Cabo Verde, in force until 2020;
- PAGIRE, National Action Plan for Integrated Water Resources Management in force until 2020;
- PDAS: Water and Sanitation Master Plans;
- Penger: National Strategic Plan for Waste Prevention, 2015-2030.

Cabo Verde's contributions in this sector for 2030 are as follows:

### **ADAPTATION CONTRIBUTION #1: IMPROVING WATER SECURITY AND NATURAL REPLENISHMENT WHILE REDUCING THE WATER CARBON INTENSITY**

Cabo Verde undertakes to minimise technical and commercial water losses and to mobilise water supply using renewable energy to secure a sustainable and resilient water management system by 2030. To achieve this target the following measures are planned:

- From 2021, outline and keep up to date an implementation plan for the PLENAS and the ESGAS targets to ensure the **availability and sustainable management** of drinking water and sanitation for all;
- Integrate the climatic, biophysical and economic limits to increasing water supply into the revisions of PLENAS and PAGIRE, start by reducing water losses before increasing water supply and ensure a **fair share** of clean water to all consumers by 2030;
- Reduce **hydro-inefficiency** through water losses in water supply systems and desalination plants from today 30% to 10% in 2030;
- Increase the installed **RE capacity** as energy source for the production of desalinated water;
- By 2022, create an incentive framework to attract **domestic and foreign direct investment** in low-carbon desalination techniques;
- By 2030, increase the **storage** capacity per capita through the design/building of small dams, terraces, tanks and reservoirs to retain water, to slow down the runoff and enhance groundwater infiltration;
- Improve the infiltration and **replenishment** of water resources through NbS such as soil cover for humidity, altitude moisture and rain vegetative harvesting, slope stabilisation, agroforestry etc.;
- Improve and enforce the **licensing** system for capturing groundwater in order to avoid over exploitation.

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**Lead Agencies:** National Water and Sanitation Agency (ANAS) and National Water and Sanitation Council (CNAS); DNICE at Ministry of Industry, Trade and Energy.

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### **ADAPTATION CONTRIBUTION #2: ENHANCING SEWAGE, SOLID WASTE AND WASTEWATER TREATMENT**

Cabo Verde undertakes to provide sewage systems to all households and provides safe wastewater treatment, increasing the use of renewable energy and the recovery of nutrients and energy from wastewater, by 2030. To achieve this target the following measures are planned:

- By 2030, set up sustainable, data-supported, institutional and technical waste management systems based on the principle of **reducing the waste and sewage** quantities at source before managing them (legislation on single use plastics, building waste, packaging, segregation, recycling, treatment) serving all Cabo Verde municipalities;
- By 2025, integrate the principles of climatic, biophysical and economic limits and securing **efficiency before increasing supply**, to water and sanitation management into the evaluation and revision of PDAS, the action plan for solid waste treatment and sewage network, and regulate and implement a new water and sanitation code. Present proposals to:
  - Strengthen municipal knowledge, means and equipment for solid and organic waste control, reduction management and awareness raising among households and communities;
  - Raise awareness among local administrations, private sector and populations to control and reduce waste production;
  - Strengthen monitoring and promote recycling ;
  - Incentivise private sector operators and technology providers to get involved in waste implementation policies.



- By 2030, provide **100% waste disposal** coverage such as septic tanks for households outside the network;
- By 2025, develop and implement training programs for the domestic and community **reuse of solid waste**;
- By 2025, massify waste bins in rural communities and improve **waste collection**;
- By 2024, adopt a national strategy on **organic waste** at the municipal level, as well as for specific industries, notably fishing, agriculture, and tourism. Create an organic waste recycling centre on Santiago island; set up a comprehensive adapted strategy for energy and nutrients recovery from waste, via biogas and other means.

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**Lead Agencies:** ANAS and CNAS

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## Agriculture

Cabo Verde suffers prolonged drought periods. Erosion and soil degradation have led to increasing desertification over the past decades. The negative impact of drought on agriculture is paralleled by a decline in agricultural and food production and an increase in agricultural and water prices. Agriculture is predominantly based on subsistence family production. Drip or drop by drop irrigation has expanded fast, with investments made in water mobilisation and gravity irrigation schemes but it still needs further extension and improvement. The expansion of agriculture depends on the use of smart and sustainable water management. Agriculture and livestock, together with fishing, are the main economic activities in rural areas and can expose the rural population to poverty due to its fragility.

The NDC commitments for this sector are based on the objectives of the following national plans:

- Forest law adopted in 1998;
- ENSAN: National Strategy for Food Security and Nutrition, 2015–2020;
- PLEAR\_CAV: Plan for Agricultural and Rural Statistics, current practice, 2015–2021;
- PE-SNIA: Strategic Plan of the National Agricultural Research System, 2017–2024;
- PLANEER: Strategic Rural Extension Plan, 2017–2026;
- PNIA-SAN: Future National Programme for Agricultural Investment, Food and Nutrition Security, adopted in 2018.

Cabo Verde's contributions in this sector for 2030 are as follows:

### ADAPTATION CONTRIBUTION #3: INCREASING AND SUSTAINING LAND-BASED FOOD SECURITY THROUGH REGENERATIVE AGRICULTURE

Cabo Verde undertakes to create a resilient agriculture and sustainable livestock economy by 2025, nation-wide and island-specific, by perpetually regenerating its agricultural resources (soil, water, vegetal and animal genetic material, knowhow, ...) and closing the cycle between nutrients removed from and nutrients returned to the soil, and turning imported biomass and its organic waste to an advantage for national soil fertility enhancement. To achieve this target the following measures are planned:

- Integrate the climatic, biophysical and economic limits to **agricultural water supply** policies and practices, start by reducing water losses before increasing water supply, reduce brackish water desalination for agriculture and promote other techniques, such as natural replenishment of water resources to avoid salt intrusion, or reverse osmosis;
- Improve agricultural water use through efficient **irrigation** systems, with an emphasis on micro-irrigation and smart hydroponic systems. Increase the irrigated land based on drip irrigation (17% in 2015) and adopt measures to irrigate from reused treated wastewater as a measure of resilience;
- Reverse and prevent land degradation through **agricultural-land preserving spatial planning**, plan cities to allow for urban farming (ground/roof/front/balcony gardening, urban organic waste composting, ...);
- Reverse and prevent land degradation through **soil and water conservation techniques** such as mulching, planting of cover crops, application of organic amendments, agro-forestry systems, efficient non-depleting biomass use for energy, preference of nitrogen-fixing leguminous crops over soil-depleting ones, anti-erosion practices such as terraces, contour ridges and vegetations barriers etc;
- Promote **integrated pest and disease management** such as the use of natural enemies of plants and approved pesticides to reduce seasonal infestations and crop yield losses;
- Associate agriculture systematically to **livestock** in order to cycle soil-regenerating nutrients and enhance conditions for the maintenance of livestock, making it more adapted to the new agro-climato-ecological

conditions, especially in what refers to heat and water management, cattle feed and the control diseases;

- Strengthen modern and profitable **agro-entrepreneurialism** with the development of precision and digital farming, urban farming and orchards, greenhouses and aquaculture, hydroponics, tourism industry supply with local products, modern cooperatives, companies or public-private partnerships, digitalisation, RE and EE in agricultural transformation, distribution and commercialisation (cold chain, ice production, online-shopping);
- By 2030, women will take up 40 % of employment in agriculture;
- Invest in agricultural **research, extension, demonstration** and farmers capacity in order to:
  - modernise ancient, tried-and-tested **coping strategies** in the face of extreme weather and agronomic conditions, such as vegetative rain- and mist harvesting, seeds and water conservation, crops associations, fruit tree cultivation;
  - develop locally-appropriate, low-tech, low-energy, low-cost adaptation practices, easily replicated and **simple** to adopted, resilient in the face of energy and material shortages;
  - improve (grafting, pruning, ...) and climate-adapt local plant and animal **genetic resources** and varieties, including the development of short-cycle and drought-resistant crops, in order to make them climate-resilient and increase food quantity and nutritious quality;
  - recuperate the large amounts of **imported biomass** (food imports for residents and tourists) and consumed in Cabo Verde as additional local soil enhancers (collecting, composting and biomethanisation of urban and hotel organic waste in order to produce fertiliser for the local soils);
  - improve **fodder** production quantity (on-farm hydroponics, ...), quality and conservation.
- By 2025, adopt a public **agricultural financing and credit** program to promote regenerative, circular agricultural systems, with special incentives for women and youth to enter the scheme.

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**Lead Agencies:** General Directorate of Agriculture, Forestry and Livestock; Ministry of Agriculture and Environment, supported by the Institute for Gender Equality and Equity.

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## Oceans and Coastal Zones

The ocean is critical for the global climate system and planetary health. It absorbed 25% of all CO<sub>2</sub> emissions and captured 90% of the additional heat generated from GHG emissions, but it is now warming and acidifying. Marine and coastal ecosystems not only sequester carbon but also protect coasts, assets and communities from climate damage.

In 2015, Cabo Verde became the first African country to adopt a blue growth charter for a sustainable fishing sector, and it is moving toward the development of the National Blue Economy Investment Plan (PNIEB). The blue economy is an instrumental part of the Cabo Verde Ambition 2030 ranking second in the list of most important economic sectors (and a key export driver) for the country. Tapping into the full potential of the country's vast exclusive economic zone (800 000 km<sup>2</sup>, 200 times its land surface) and strategic location, the Government aims to transform Cabo Verde into a maritime and logistics platform in the Atlantic. The flagship project toward that goal is the creation of a special exclusive economic maritime zone centered around the island of São Vicente, home to Porto Grande, the country's largest port. For that purpose, in 2018 the Cabo Verde Government created an ad hoc organisation to accompany the planning process of the Special Economic Zone of Maritime Economy in São Vicente (ZEEEM-SV).

Fisheries play a strategic role in the national economy despite their current low contribution to GDP (1% est.) or to employment (around 5% of the active population, with women mainly concerned with selling fish on the markets). The sector contributes to exportation and nutrition (in average each resident consumes 11 kg/marine products/year) and is of high socio-economic importance in the rural coastal fishing communities. Ocean-based food production provides food during extreme events such as droughts or importation constraints, when the land-based food sources are affected and limited.

However, the blue economy's prospects are put at risk by a physical environment that is increasingly fragile. The increase of population growth in coastal areas intensifies the exploitation of resources and coastlines, along with increased deposition of waste, putting at risk the health of marine and coastal ecosystems and eliminating the capacity of nature to regenerate itself. This applies, in particular, to the overexploitation of inert and fishery resources, but also to the environmental degradation of the sea beaches (mainly in urban areas), which retain uttermost importance both for their environmental (habitat) services and their value for the tourism industry.

Sea level rise, for its part, presents existential risks. A projected increase in sea level from 0.26 m to 0.98 m over the next 60-80 years will increase coastal submersion, erosion, flooded areas and salinity in Cabo Verde, with a massive impact on coastal infrastructure (including tourism) and people, 80% of which live along the 1 000 km long coast line.

Important coastal wetlands extend into the ocean. Seagrass meadows, in particular, are vast marine prairies that lie along the coasts, bordering the oceans and seas of the world. They play an integral role in delivering multiple benefits to the environment – and people. They are nurseries for commercial fish and a food source for marine turtles and manatees among others and are an important habitat for endangered species like seahorses. They also promote sediment stabilisation, pathogen reduction in coastal waters and carbon sequestration. Cabo Verde has launched its first seagrass protection pilot project in Santiago.

**The NDC commitments for this sector are based on the objectives of the following national plans:**

- NBSAP: National Strategy and Action Plan for Biodiversity Conservation, 2015-230;
- PNIEA: National Blue Economy Investment Plan, since 2019 in approval process;
- PROMEA: Blue Economy Promotion Program, since 2019 in approval process;
- QEUEA: Unified Strategic Framework for the Blue Economy, since 2019 in approval process.

Cabo Verde's contributions in this sector for 2030 are as follows:

#### **ADAPTATION CONTRIBUTION #4: INCREASING AND SUSTAINING OCEAN-BASED FOOD SECURITY THROUGH REGENERATIVE FISHING**

Cabo Verde undertakes to adopt sustainable fishing practices as a contribution to reducing pressure on islands fishing species and improving national food security, protein supply, nutrition and health as well as employment opportunities. Therefore ocean food production must meet national and local needs and be adapted to a changing climate. To contribute to the target the country will adopt the following measures:

- Adopt a robust system for **monitoring, control and surveillance**, including by digital traceability, of fisheries activities – legal and illegal –by 2025 (including by foreign fishing vessels);
- Develop, adopt and implement science- and ecosystems-based plans to **rebuild depleted fisheries stocks**, and ensure adaptive fisheries management to respond to climate change and uncertainties of shifting ocean ecosystems, based on the UN Fish Stocks Agreement and the FAO's guidelines and in agreement with regional fisheries management organisations;
- **Protect local fish** consumption and domestic small-scale fisheries over international tourism industry supply, exportation and large-scale international fisheries;
- Condition fishing subsidies, quotas and authorisations to sound **screening of available fishing** resources and replenishment rates, endangered and vulnerable species and habitats, including with respect to the risk for habitats (including seabeds) and by-catches, with clear safeguards in place against overfishing and overexploitation, and to minimise collateral damage;
- Implement a quality and environmental **label** for fishery products by 2027;
- Put in place policies and management frameworks to minimise the environmental impacts of **aquaculture** and adopt fiscal and regulatory incentives for the establishment of such aquaculture installations;
- Develop a gender analysis of **women and men in the blue economy** (promoting entrepreneurship, developing jobs for the young, encouraging innovation) by 2022 and identify priority gender-specific actions;
- By 2030, women will take up at least 40% of employment in the blue economy.

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**Lead Agencies:** Ministry of Agriculture and Environment; Ministry of Maritime Economy, supported by the Institute for Gender Equality and Equity.

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#### **ADAPTATION CONTRIBUTION #5: EXTENDING MARINE PROTECTED AREAS**

Cabo Verde undertakes to halt the alteration and destruction of marine natural habitats and the loss of marine biodiversity through adoption of national policies and protected marine areas plans that contributes to the extension of protected marine areas ("MPAs") and to the implementation of their monitoring mechanisms. To contribute to the target the country will adopt the following measures:

- Capitalise on knowledge and **spatial analysis tools to identify carbon sequestration potential and optimal locations** for marine protected areas, and other area-based conservation measures;
- Increase of the area of **coastal and marine protected sites** (currently some 128,000 ha) by 50% by 2030;
- Develop **management plans** for 100% of marine protected areas by 2030 that include actions to adapt to climate change. Incorporate a mechanism for monitoring and reviewing marine protected areas management plans involving local populations;
- Adopt a **law to regulate marine spatial planning** by 2022 and/or revision and adaptation of the current basic law of territorial planning and urban planning to include maritime spatial planning (a tool that allows the zoning of activities to be developed at sea; law defining the use of maritime space and maritime spatial planning);



- Adopt a **national maritime space management** plan by 2024 built on the protection and restoration of Cabo Verde's blue natural capital and incorporating ambitious climate change targets, with ZEEEM-SV assuming an explicit stewardship role;
- Identify and implement **awareness-raising** actions in each island during 2023-2024 among residents, tourists and fishermen associations for the protection of marine species.

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**Lead Agencies:** Ministry of Maritime Economy; Ministry of Agriculture and Environment; Ministry for Infrastructure, Spatial Planning and Housing, INGT.

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## **ADAPTATION CONTRIBUTION #6: DEFENDING MARINE RESOURCES AND COASTAL ZONES**

Cabo Verde undertakes to adopt planning regulations and management plans by 2025 to protect marine resources and maritime spaces and place blue habitat conservation as an integral part and backbone of the country's blue economy strategy and prioritisation. In addition, Cabo Verde undertakes to design and adopt a string of natural based-solutions (NbS) tailored to the particularities of each island, as a key adaptation element to tackle rising sea-levels, increased risks of flooding and damage to coastal dwellings and infrastructure. To contribute to the target the following measures are planned:

- Implement **coastal protection** in each island, the priority order being their climate risk coefficient and the criticability of the endangered ecosystems (wetlands, seagrasses, salt marshes, sand dunes, reefs, ...);
- Use **nature- , ecosystem- and landscape-based solutions** in planning and implementing coastal restoration and protection works to combine with or substitute for grey infrastructure, and incentivise their use to sequester and store carbon and improve coastal resilience, while also delivering food, socioeconomic and cultural benefits (artificial wetlands or salt marshes, beach nourishment, reef creation, revegetation, dune fixing shrubs, nutrient cycling, expansion room for the sea or dunes, ...);
- By 2023 a study will be carried out on the activity of collecting and extracting **sand from the beaches**, in order to determine its socio-economic and environmental impacts and to identify alternatives for the people dependent on this activity. The results will be integrated into policy in 2024;
- Inventorise **seagrass** beds, develop a protection strategy and create a comprehensive seagrass conservation regime by 2024, providing continuity to the existing seagrass inventory project currently developed in Santiago and Maio. Implementation of a Cabo Verde seaweed germplasm bank. This action will be complemented with the creation of knowledge expertise within the Cabo Verde scientific and university community in this area;
- Implement the recent created **sea campus** and link the Cabo Verde Ocean Observatory, the Cabo Verde Atmospheric Observatory and the Ocean Science Center in Sao Vicente with the objective: training of executives, to work in areas linked to the maritime sector, in a perspective of high standing and internationalisation of services, and the development of the research on the sea, fisheries, maritime transport technologies and climate change;
- Identify and support high-impact **research on marine resources and marine biology** in collaboration with international research centres (incl. seagrass, algae, plankton to provide food or medication, capture carbon, or substitute fuel, plastics, feedstocks...);
- Create a **blue fund** by 2023 for domestic and international financing of the blue economy. Exploiting payments for environmental services to support the blue economy.

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**Lead Agency:** Ministry of Maritime Economy; Ministry of Agriculture and Environment and Ministry for Infrastructure, Spatial Planning and Housing; INGT, Infraestructuras.

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## Spatial planning

Territorial planning is an important tool in the fight against climate change, in the sense that it can set aside land for resources replenishment and regeneration, carbon sequestration, protection of livelihoods and assets, and overall organise economic development so as to avoid encroachments and competition of land-uses. By deciding where an infrastructure is to be built, it can be more or less exposed to climate change. By reducing urban sprawl or planning active and public mobility infrastructures, it can reduce GHG emissions. By prohibiting construction in risk areas, it can save lives. To this adds that maps are a formidable awareness raising and consensus building tool.

The accelerated growth in Cabo Verde's cities is a main concern for Cabo Verde. It occurs in large part spontaneously and in an under-organised manner, especially in the big growth cities such as Praia, Sal, Rei, Mindelo, Santa Maria and Espargos, generating socio-economic conflicts and unfolding environmental impacts. For the country, it is necessary to revert these patterns of urban expansiveness that are a drain on lands and habitats, public services, and infrastructure spending.

Over the last years, the country has adopted a set of laws and regulations laying out the basis for an effective and rational implementation of land planning strategies and integration of climate change. Yet, there are still gaps and shortcomings including concerning the effective implementation of plans and policies, as well as monitoring and surveillance, evaluation, follow-up compliance and enforcement. Cabo Verde focuses on decentralisation strategies to permit local communities to take key planning, development and enforcement decisions.

**The NDC commitments for this sector are based on the objectives of the following national plans and strategies:**

- Decentralisation law, n° 69/VII/2010, adopted in 2010 and attributing to municipalities, among others, the competence of spatial and urban planning;
- PEMDS: Strategic Municipal Plan for the Sustainable Development of Cabo Verde. They are the municipal declination of PEDS and defines the goals, indicators and objectives to be achieved in the each of the 22 municipalities for each sectors;
- National Spatial Planning and Urbanism Policy, approved in 2020, that integrates the problem of climate change by including as guiding principles environmental care and resilience to environmental climate change;
- National Housing Policy, approved in 2020, which incorporates strategies for mitigation and adaptation to climate change;
- Urban Agenda 2030, which guides the implementation of SDG 11 concerned with making cities and human settlements inclusive, safe, resilient and sustainable;
- Cabo Verde Habitat III Report, which seeks to implement the UN Habitat Agenda and the UN New Urban Agenda.

Cabo Verde's contributions in this sector for 2030 are as follows:

### **ADAPTATION CONTRIBUTION #7: USING SPATIAL PLANNING AS AN ALLY IN CLIMATE CHANGE ADAPTATION AND MITIGATION**

In view of the territorialisation of the NDC, Cabo Verde is committed to integrate climate issues into national and municipal planning. Cabo Verde will draw a new map of Cabo Verde, reflecting new land-uses as derived from new climate policy. This map aims at prioritising climate-resilient land-use over climate exposed land-use to save lives and assets. To contribute to the targets the country will adopt the following measures:

- By 2023, draw a **new map of Cabo Verde** reflecting new land-uses as derived from new climate policy (NDC, NAP). This map aims at solving competition between land uses by prioritising climate-resilient

land-use over climate exposed land-use to save lives and assets. The basis is the pilot national climate mitigation and adaptation methodology and map series developed in 2021 by the Directorate for Environment and INGT. By 2025, provide capacity building at national and municipal levels to model climate scenarios spatially and to implement the new climate-proof planning, align the updating of the Municipal Master Plans (MMPs) and the PEMDS. The principles of the new map are the following:

- **Municipal decentralisation:** the 22 municipalities, via their MMPs, are responsible for climate-proof planning, implementing, and sharing data with the national level;
- **Risk mapping:** revisit existing maps to identify the climate risk hot spots as well as the areas with greatest potential for mitigation and adaptation (coast protection, watercourse restoration and vegetation, urban green spaces and trees, wetland protection, groundwater recharge areas...), include zones where human activities are endangered and prohibited;
- **Loss of territory and biodiversity:** plan for the loss of coastal territory, the displacement of communities and assets, the space necessary to protect the littoral, where people and assets are concentrated, from building up and eroding; Draw up all Coastal and Adjacent Seaside Management Plans, POOC to safeguard, conserve and protect marine biodiversity, including seagrass areas, thus adapting the planning of this area to climate change, including the prediction of sea level rise;
- **Land and Landscape approach:** adopt a land-based approach for the protection of vulnerable communities and sensitive ecosystems. This entails f.i. to set aside land for the natural extension of the sea, do not build in the way of nature (flood zones), identify the potential and location for adapted NbS, no net reduction of food-production and water infiltration areas, consider peri-urban ecosystems apart, in order to set aside land for the cities short-circuit supply in food, water, recreation, clean air etc;
- **Multifunctional planning:** to save land and costs, a building should multiply functions (housing, work, services, shopping, storage, parking, recreation ...) and provide at the same time space and shelter, food, energy, water, ...;
- **Science-based and data-driven:** access satellite imagery and generate geomatic data, establish nationwide odometric, meteorologic, bathymetric stations and charts and scientific studies in order to allow the generation and inclusion of these factors in decision-making.

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**Lead Agencies:** Ministry for Infrastructure, Spatial Planning, and Housing; INGT and Infraestructuras; National Association of Cabo Verde Municipalities.

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## Disaster risk reduction

In 2017 Cabo Verde committed to implement the Sendai Framework for Disaster Risk Reduction (DRR) which goes hand in hand with the Paris Agreement and that sets out the overall objective to substantially reduce disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries.

Cabo Verde's National Strategy for Disaster Risk Reduction (ENRRD), adopted in 2018, aims to provide an effective policy plan for managing risks, preventing disasters, minimising damage and associated losses, and avoiding the creation of new risks by establishing institutional mechanisms and capacity building to plan and implement disaster risk reduction to build the resilience of Cabo Verde. ENRRD promotes the integration of risk reduction and adaptation to climate change in all sectors relevant to food security and reaffirms the need to develop risk insurance as a measure of financial protection against risks of disasters. However, the implementation of the national strategy is slowed down by a number of challenges in the field of Emergency Preparedness and Response (EPR).

The NDC commitments for this sector are based on the objectives of the following national plans and strategies:

- ENRRD: National Strategy for Disaster Risk Reduction 2018-2030.

Cabo Verde's contributions in this sector for 2030 are as follows:

### ADAPTATION CONTRIBUTION #8: MITIGATING CLIMATE RELATED DISASTER RISKS AND VULNERABILITIES AND PROMOTE ADAPTATION TO CLIMATE CHANGE

Cabo Verde undertakes to implement its National Strategy for Disaster Risk Reduction by 2030, in conjunction with its new climate map (see above), and adopt and implement resilience and disaster management plans by cities and municipalities. To contribute to the target the country will adopt the following measures:

- Assist the **National Service for Civil Protection and Fire Brigades (SNPCB)** with technical and financial assistance for the implementation of the ENRRD;
- By 2022, identify vital, strategic and **critical infrastructures**, equipment and services, which functions are to be protected at all cost, including via duplication; make the national Building Code resilient and low-carbon and offer save and affordable alternatives to vulnerable households living in climate-exposed areas;
- By 2023, adopt a **municipal risk disaster and resilience reduction plan** for all 22 municipalities, based on the ENRRD and the designate risk areas in spatial planning, with focus on emergency response and climate risk prevention and management on hot spot areas affected by heavy losses;
- Undertake **simulations of response** to emergencies at municipal and bairros levels. The aim is to make the municipalities more efficient, agile and supportive in responding to all types of shocks, including those related to resources, such as water and energy;
- By 2023, provide risk data and information: set up **early warning systems** with recognition of the differentiated impacts most vulnerable groups (women, the youth, disabled people) face during disasters. Elaborate and adopt a national **climate change vulnerability index** and monitor; Create a national **observatory of the territory** to monitor the hazard dynamics and occupation of the territory;
- Expand **livelihood protection policies** that assist vulnerable, low-income individuals to recover from damages associated with extreme weather events; provide support and protection for internally **displaced persons**, persons displaced across borders and host communities;
- By 2026, draw up **disaster recovery plans** for all 22 municipalities with resource inventories, first response measures and actions (including on logistics) concerning humanitarian post-disaster needs. Local disaster recovery plans will involve an inventory of physical and human resources, with involvement of direct from services involved in post-disaster assistance, such as, SNPCB, national police, armed forces, social assistance, health, among others, across spheres of Government.

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**Lead Agency:** Ministry of internal Administration; SNPCB; Ministry for Infrastructure, Spatial Planning and Housing, INGT, Infraestructuras.

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## Health

Climate change has already led to significant social and environmental impacts and has subsequent effects that in turn impact human health. Global food security is threatened by rising temperatures and increases in the frequency of extreme events; global potential yields for major crops have declined by 1.8-5.6% between 1981 and 2019. Climatic suitability for infectious disease transmission has increased rapidly since the 1950s with a 15% increase for dengue and regional increases for malaria and *Vibrio* bacteria. Worldwide between 145 million and 565 million people are today at risk of potential inundation from rising sea levels.

Following up on and enhancing the achievements the country has made on improving public health over the past decades, Cabo Verde is committed to integrating the concept of climate change into its health policies and, in particular, into its “One Health Strategy”, which is designed to inform all health-related policies and combines three components: Human Health, animal health and environmental health, offering a holistic approach to face health risks and respond to future epidemics, involving different ministries and entities responsible for human, animal and environmental health.

The most frequently used indicators when assessing the effects of climate change on the disease profile in Cabo Verde are those related to

- i. vector-borne diseases such as malaria and dengue fever;
- ii. health impacts of climate-related health hazards (e.g. floods, storms etc.);
- iii. food and nutrition insecurity and water scarcity; and
- iv. respiratory diseases caused by cooking stoves, dust (*bruma seca*) or skin cancer due to the high incidence of solar radiation.

Of particular relevance is the air quality in Cabo Verde, which in many localities is considered unsafe. Contributors to poor air quality in Cabo Verde include dust blowing from the Sahara Desert and vehicle emissions. Seasonal variations in pollution exist, with the highest levels occurring during October to March due to dust storms.

Against this backdrop, public health and the capability to respond to future health emergencies are cross-cutting priorities in Cabo Verde’s NDC. Detailed health-climate resilience measures will be part of the upcoming NAP.

The NDC commitments for this sector are based on the objectives of the following national plans:

- Law of the National Health Service, approved in 2003, currently under review;
- National Health Development Plan 2017-2021.

Cabo Verde’s contributions in this sector for 2030 are as follows:

### ADAPTATION CONTRIBUTION #9: CONFRONTING CLIMATE RELATED HEALTH RISKS

**Cabo Verde undertakes to adopt a national plan for health and climate change and build climate change considerations into its national One Health Strategy and to combat health risks and respond to future epidemics by 2025 at the latest. To contribute to this target, the following measures are planned:**

- Create a Cabo Verde **profile for climate change and health** and improve the national database for the country’s diseases related to climate change and to climate-vulnerable groups, as instruments for progress tracking, monitoring and evaluation of health effects;
- Study and quantify **health co-benefits** related to the reduction of GHG emissions and climate vulnerabilities as a consequence of the implementation of the NDC and the NAP the NDC, to be integrated into cost-benefit analysis in policy-making processes;



- Set up municipal capacity to integrate climate-derived health issues into the municipalities sustainable development plans leading to **municipal climate change actions** plans with health prevention, treatment, monitoring programs;
- Launch a national information campaign on the health benefits associated with **cycling and walking** as opposed to driving;
- Identify the vulnerabilities and strengthen the climate resilience and environmental sustainability of **healthcare facilities and infrastructures** (location and physical criticality, secured energy and water supply, comfort, ventilation and heat management, prevention and management of hospital waste, ...);
- Set up till 2022 a **national action plan on health and climate change** indicating additional priority measures and actions to be implemented till 2030, as well as establishing a financial plan to identify financial support needs from the international community;
- Set up a **research** project to identify health effects of climate change on animals and vegetable species in the country.

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**Lead Agencies:** Ministry of Health; Public Health National Institute; Ministry of Industry, Trade and Energy, supported by ICIEG.

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## TRANSPARENCY AND GOVERNANCE

Tracking progress of implementation and achievement of the NDC will be done in the framework of the Enhanced Transparency Framework (ETF) as outlined in Art. 13 of the Paris Agreement. In order to communicate and account for the NDC and prepare the roll out of the ETF in Cabo Verde, the country promotes the following actions:

- Improving robustness, comparability and completeness of **climate change data** ;
- Providing **climate change services** to multiple users;
- Establishing a result-oriented, effective **climate change governance**;
- Complementing the NDC by a comprehensive **National Adaptation Plan to climate change** to be submitted to the UNFCCC;
- Endowing the NDC and NAP with **Implementation Road Maps until 2030**, which attribute responsibilities, present detailed costs and align performance indicators with national planning;
- Continue its pioneering position as a SIDS in **reporting to the UNFCCC** and delivering the NC, BUR, BTR as per Paris Agreement;
- Empowering society-as-a-whole for **climate action**;
- Preparing the Long-term Low-Emissions Development Strategy for 2050.

## Climate data

The country is currently preparing its first Biennial Update Report (BUR) and an updated GHG Inventory for the 4<sup>th</sup> National Communication to the UNFCCC.

The country is still facing considerable challenges to generate robust GHG data and methodologies. Key obstacles include:

- Limited technical and institutional capacity to trace, model and project emissions data;
- Absence of a centralised system to collect and analyse data from different sectors;
- Lack of national conversion emissions factors (current data relies exclusively on IPCC default values);
- Inexistence of institutional mechanisms of cooperation among national institutions to share data;
- Incomplete GHG inventory history.

**Insufficient data on, in particular, agriculture, land-use and forestry emissions and removals**, and lack of procedures to collect and regularly update data. Seeking the improvement of GHG data collection and management, Cabo Verde is currently developing a legal act establishing a national GHG inventory system (SNICV). With this legal act, Cabo Verde intends to institutionalise climate monitoring and reporting. Improving data collection and reporting will provide national benefits including access to new information (including across sectors and activities), identifying capacity building needs, and the establishment of structures and systems for better data gathering and sharing. Improving climate change data will also increase the engagement of different national stakeholders in climate change policies, the awareness of citizens as well as the political will for climate action. It will also allow Cabo Verde to identify needs, gaps and difficulties in data generation and collection and seek clear international support. The new data and evidence will serve as well to update national policies and strategies.

The SNICV includes four major elements, namely:

- The GHG Inventory Preparation Plan;
- The Quality Control and Assurance System;
- The Methodological Improvement Program;

- The Archive and Documentation System.

## Climate services

The Government of Cabo Verde intends to implement until 2025 a National Framework for Climate Services or NFCS in alliance with the recommendation of the World Meteorological Organisation. The national action plan for the creation of the climate services framework in Cabo Verde has been adopted in October 2020. The NFCS is an institutional mechanism to coordinate, facilitate and strengthen collaboration between national institutions to improve the co-production, adaptation, delivery and use of climate forecasts and services, with the aim of enhancing food and nutrition security, water management, health and DRR as well as the production of RE.

NFCS aim to deliver the following climate services: meteorological, agro-bio-meteorological and climatological data, bulletins, information, analysis, cultural calendars, indicators, models, maps, didactic material for school curricula, playdoyer and empowerment material, early warnings, tailored to international, sub-regional, national, municipal, local, civic, ONG, press users needs. Media: paper, website, apps, TV, radio, rural animation, press, SMSs/email...

NFCS's aims to strengthen overall climate capacity and to contribute to making decision-making at all levels and in all sectors climate-proof. Specifically, the NFCS will:

- improve the understanding of climate-related risks and vulnerability;
- strengthen capacities for observation and monitoring of climate systems;
- integrate climate information into development plans and climate decision-making;
- support capacities to develop, integrate and communicate meteorological and climate information;
- expand the capacity of users to understand and apply meteorological and climate information optimally;
- Strengthen research, modelling and forecasting related to climate change.

## Climate governance

The existing climate change governance system, as created by law in 2007 and 2019, will be restructured for greater efficiency, enhanced capacity in mobilising international climate finance and greater public outreach. It will be articulated on three levels, namely:

### Strategic level

The core of the first level is the **National Climate Council (NCC)**, (vice-) presided over by the Ministries having Finances and the Environment in their attributions and composed of the main administrations concerned with climate change (see fig. 9). The Council formulates climate policy, adopts the national climate strategy, including for finance, in view of transposing the Paris Agreement, in accordance with national development objectives. The Council coordinates the translation of this strategy into national sectors planning, policies and budgets and into bilateral and multilateral climate cooperation programmes. It defines the climate country programmes per international funding source, sets the criteria for eligibility of national and local projects for climate funding, and selects the indicators to monitor progress.

The **Council coordinates the LT-LEDS 2050**. The Council articulates between the operational and civic levels of climate governance (see below) and gives guidance to enhance civic climate empowerment. For its work, it builds upon the recommendations of the civic Forum. It may constitute sub-working groups and seek the support of advisory bodies.

## Operational level

### *Climate Department at the National Environment Directorate (DNA, Ministry of Agriculture and Environment)*

The DNA, as Designated National Authority to the UNFCCC and leader of the Climate Change Committee established in 2008, is responsible for climate accountability and communication under the Convention and for transitioning to the ETF. DNA is in charge, in conjunction with DNP, of coordinating the technical and sectoral implementation of the NDC and the NAP.

For this purpose and with the support of international climate partners, the DNA will set up and host a Climate Department. The Department will be structured into a mitigation arm (responsible for inventories and GHG reporting) and an adaptation arm (responsible for both adaptation planning and monitoring). It will be in charge of accounting for the technical and sectoral indicators for tracking NDC and NAP progress, as a basis for preparing national communication/reporting to UNFCCC. In coordination with DNP, the Department will be responsible for gradual deployment of the Enhanced Transparency Framework (ETF, Art. 13).

The Climate Department will closely interact with the 22 municipalities and assist the municipal development platforms in technically implementing the national climate planning and policies into municipal development plans.

It will also interact with the local DRR platforms as well as with the 22 PDMs.

The Department will assist national agencies in their endeavour to become climate finance ready and support project promoters with the development of climate projects or funding proposals to international climate financiers, in accordance with the strategy and criteria set up by the National Climate Council.

### *Climate Service at the National Planning Directorate (DNP, Ministry of Finance)*

The DNP is a central service whose mission is to support the Government of Cabo Verde in defining and elaborating the national strategy for development planning, as well as to coordinate the elaboration, implementation, follow-up and evaluation of the national development strategy document.

The DNP leads the Interministerial Articulation Committee for Climate Funds established in 2019 and is therefore responsible for coordinating International Climate Finance (ICF). The DNP is in charge, in conjunction with DNA, of coordinating the planning and financial implementing of the NDC and the NAP. DNP will integrate climate planning within the next PEDS, in order to align the NDC and the NAP with PEDS. DNP is also in charge of transposing the national climate planning to the municipal level.

The DNP, as National Designated Authority to the GCF, is the Government department mandated and authorised to enter into specific financial transactions with other countries on behalf of the Government. It mobilises ICF and negotiates specific bilateral financial transactions, coordinates its flow in alignment with the national climate strategy and planning and manages the database of projects eligible for domestic and international climate finance.

In so doing, the DNP will rely on its Resource Mobilisation Service, an internal unit whose task is to monitor and coordinate with different Governmental institutions the disbursement and follow-up of international funds and centralising information, making it possible to evaluate the results and monitor the implementation of commitments.

## Decentralised level

The Municipal Development Platform aims to strengthen municipal action on climate and promote the involvement of all municipalities in the processes of planning and implementing climate actions. It will also serve to guarantee the participation of municipalities in the definition and monitoring of climate policy and long-term low emissions development 2050. The Platform is mandated by the National Climate Council.

## Civic level

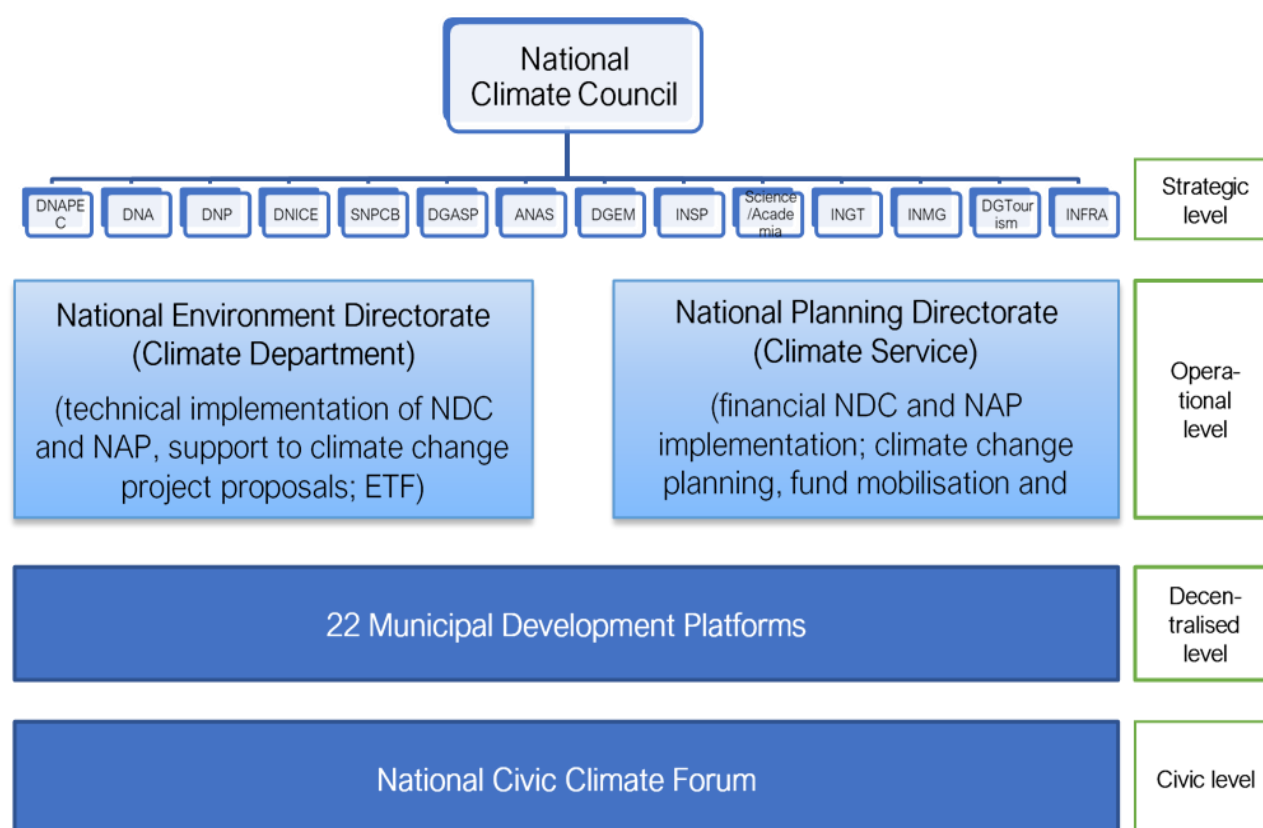
The National Climate Council will coordinate and the operational levels (DNA/DNP) will prepare a national civic Platform whose mission it is to inform decision-makers on “The Cabo Verde We Want by 2050”.

The Platform aims at empowering civic climate action and fostering citizen’s engagement for societal value change. The platform is mandated by the Council to participate in defining and monitoring climate policy and long-term low emissions development 2050.

The engagement in the Platform is open and voluntary, directed to all citizen’s, as individuals or associations, scientific and academic bodies, training institutions, cities, NGOs, parliamentary commissions, press, private sector trades, firms and professions, engineering and architectural representations etc.

The culmination of the Platform’s work is an annual **National Climate Forum**, a two-days event, structured in sub-groups, which report to the plenary, ahead of each annual UNFCCC climate Conferences of Parties. The Forum’s recommendations are addressed to the Government.

Figure 8: Enhanced climate change governance setting



## Climate empowerment

Cabo Verde is also committed to ensuring that **Action for Climate Empowerment (ACE)** becomes, as per Articles 6 and 12 of the Paris Agreement, a key horizontal instrument to involve all levels of society in climate action, in particular vulnerable groups (including children, the youth, the elderly and people living with disabilities) in support of all elements of mitigation and adaptation. **ACE is a non-GHG target, but without such a civic empowerment, the NDC cannot be achieved.**

Climate empowerment is a whole-of-society, long-term transformational process. All socio-economic groups are concerned and can become climate stewards. We are all in this together. Different groups have different assets,



abilities and needs. The old, the young and women are valuable stakeholders and agents of change in identifying and responding to climate change hazards, in safeguarding natural resources and in sharing their knowledge of economic, social and environmental resilience.

Society can learn a lot from **the elderly** in terms of working the lands, adapting and optimising genetic material, resources sobriety and management within the planetary boundaries. These ancient knowledges need to be cherished and adapted to the modern circumstances. A knowledge bridge needs to be built between the elderly and the youth.

**Young people** have been speaking out on climate change issues all over the world, especially in recent years. This is because they are the ones most affected by the impacts of climate change significantly through their lifetimes. Therefore, this NDC supports the participation and engagement of young people in climate-related issues, climate policy and implementation to increase resilience.

The focus on children, youth and climate reflects the special consideration given to young people and their economic potential for sustainable development in Cabo Verde's Ambition 2030. Young people represent about 46% of the labour force, 69% of the unemployed and the majority (52%) of the inactive population. At the end of 2019, 57 605 young people were living outside work, education or training in Cabo Verde and of these, 30 745, i.e. the majority (55%), are women. Being excluded from the labour market makes young people also one of the groups most vulnerable to climate change

**Women**, as raisers of the next generation, can be important stewards of intergenerational natural resources preservation.

While many gender equality targets have been met by Cabo Verde, gender roles continue to deny women full equality and access to resources. The key issues that lock the majority of women in poverty and low productivity are their lack of time - for productive labor, of land - for building assets, of financing - for extending businesses, and of knowledge to increase production and market access. The key to the next great progress on gender equality in Cabo Verde is women's economic empowerment.<sup>9</sup>

As concerns the gender-climate linkages, even though some analyses and data on certain sectors are available (gender and water, gender and agriculture, gender and tourism), the main focus is primarily on economic and social gender equality. A systematic linking between vulnerable groups, gender and climate will be established in the NAP under preparation. established. For this NDC the sectors of energy, water, land use/agriculture, blue economy and tourism are the focus of gender equality.

Under the lead of the Climate Department and the Ministry for Family and Social Inclusion, and with the support of ICIEG and INE, the following measures are planned for **climate-empowering women** and reducing their climate vulnerabilities:

- By 2022, assess which **groups and individuals are most vulnerable** to which climate effects, distinguishing between age, gender, income, sector, education, location, impairments etc. and define and operationalise group specific climate adaptation measures and climate empowerment actions;
- By 2022, integrate climate issues and ACE into the updated **gender equality plans and strategies**;
- By 2022, ICIEG will define **climate policy-specific needs, targets and indicators on gender-climate mainstreaming** for all industries and Government offices. Therefore, the capacity of the national Institute for Gender Equality and Equity (ICIEG) and the National Statistics Institute (INE) to collect, analyse and interpret gender-disaggregated statistics and qualitative studies for climate relevant sectors, or make better use of available data, will be reinforced;
- Define roles and responsibilities of and within different institutions with regard to gender and climate actions; appoint a **National Gender and Climate Change Focal Point**, linked to the Climate Governance Framework (see below, section on Transparency and Governance);
- As part of the **NAP** under preparation, present gender-differentiated and disaggregated data to identify gaps, needs, achievements and opportunities for women, men, the elderly, the youth – children in

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<sup>9</sup> Cabo Verde gender profile, UN Women 2018

particular – and marginalised and vulnerable groups, especially in rural communities and report on updates every other year onwards;

- **Accountability:** Every year, DNA and DNP report on progress in empowering vulnerable groups in climate action and on the effects of gender-sensitive climate policy planning, budgeting, implementing.

As concerns strengthening of participation and **climate-empowerment of society in general and young people** in particular in the area of climate change, the following measures to build **climate literacy, skills and engagement** are planned:

- By 2022, identify and set up a **network of youth associations** (per island/municipality or city) as a focal point for youth participation in climate action and the annual;
- A **digital platform**, open access data and didactive iterative tools, such as Les Fresques du Climat®, digital inventory by the young of the coping strategies of the old, for civic inter-generational knowledge building and sharing will be available by 2023 to engage all interested civic groups in climate conversations;
- Facilitate public access to climate information and include climate education and ancient coping practices in **textbooks** and schools for all age groups by 2025 and train teaching staff accordingly;
- From 2023 onwards, roll out specific **training** programmes, create job opportunities and offer financial support (including through tailored loan facilities for vulnerable groups) to individuals and entrepreneurs interested by the fields of RE, EE, renewable water and other resources efficiency, regenerative agriculture, NbS, responsible tourism, marine protection and technology, shipbuidling, sustainable aquaculture. In addition, youth should be able to further their education in areas such as: repair and maintenance of appliances and bicycles, food processing and preservation, supply of local products to hotels, cultural services, recycling industry, digital tools allowing energy and resources savings, language proficiencies etc;
- By 2030 triple the number of **jobs** available for young adults in fields above related to climate change and sustainability (compared to today's level);
- Encourage society at large and give incentives to low carbon, low material, low energy or locally sourced **consumption**, especially where local substitutes to importation are available;
- Designate a **National Focal Point for ACE** to foster the implementation of all ACE elements at the national level;
- Based on the experience of the *Ambition 2030* participative process, set up a **large public participation process on climate change**, culminating annually in a civic Forum entitled "The Cabo Verde we want by 2050". Consultations with the public should be part of the monitoring and future adjustment of climate policy and of the process for defining Cabo Verde's Long-Term Low Emissions Development Strategy 2050 as set out in Art. 4 of the Paris Agreement.

## NEEDS AND INTERNATIONAL SUPPORT

Cabo Verde's ambitious climate change agenda as set out in this NDC requires solid international financial support to second domestic efforts.

The Government of Cabo Verde will commit significant financial resources to implement the ambitious climate change agenda as set out in the updated first NDC. Yet the success of the implementation of Cabo Verde's updated first NDC rests on the support – in technology, capacity-building and finance – provided by international partners. A detailed assessment of budgetary own contributions and international needs and capacity building needs will be included in the NDC Implementation Roadmap to be released later this year.

### NDC finance needs

Dealing with the climate crisis may lead to a rise in costs beyond the capacity of the national budget. As such, international support to meet the rising costs of addressing loss and damage with risk transfer mechanisms are necessary.

From earlier analysis, it is estimated that the incremental financial resources Cabo Verde would need for implementing the updated NDC amount to a minimum of **2 bn Euros for 10 years** of climate action, half of the amount being earmarked for mitigation, and half for adaptation (see Box 1). This preliminary assessment is based on current best knowledge, extrapolated from cost estimates, such as that of the first NDC of 2015, and from existing budgets of major ongoing sectoral policies, which are conducive to alleviating climate risks and reducing GHG emissions, namely those for the sectors electricity and mobility, environment and biodiversity, water and waste, agriculture and forestry, blue and digital economy, sustainable tourism, DRR and research. These estimates and budgets were counterchecked with the cost estimates under the first PEDS 2017-2021.

It is however clear that a detailed assessment of budgetary own contributions and international needs is necessary. Indeed, detailed costs will be included in the NDC Implementation Roadmap to be released later this year. Likewise, the upcoming NAP Implementation Road Map will deliver the detailed activities, costs, actors, timelines and indicators for the adaptation component.

### National climate finance strategy

Cabo Verde will promote, design and adopt a range of low-carbon and resilience financing tools and instruments to channel NDC-relevant investments from public and private sources. For that purpose, by 2022, DNP will also have adopted a **Climate Finance Strategy** and **Work Plan** defining, base on transparent criteria, the envisaged project and investment pipeline needed to implement the NDC as well as concrete financing pathways. These pathways will be informed by a thorough analysis of how best to direct funding from public, private and philanthropic sources for use in different project preparation and financing stages and how it can be integrated in blended financing structures in order to reduce risks and attract capital from more commercially oriented equity investors and debt providers. Cabo Verde has gained robust experience on blended finance instruments when building its RE capacity and investors can rely on a stable, easy-to use and transparent regulatory framework for public-private partnerships.

The Climate Finance Strategy will be designed along internationally agreed **taxonomies for sustainable activities** from Africa, Europe and beyond, with a standardised definition of sustainable activities, and best practices related to objectives, finance and investment benchmarks, as well as safeguards. The Climate Finance Strategy will produce a priority list of national, municipal, private, public climate change mitigation and adaptation **projects eligible for climate financing**.

To operationalise this strategy and prepare for the national ETF roll out and for the updating of the NDC, Cabo Verde will, with adequate support, undertake the following actions, over the years to come, ideally before 2024:

- ensure coherence between its NDC and its subsequent Strategic Plans for Sustainable Development (PEDS II), integrate climate change into the **planning cycle**, with dedicated indicators;
- render its **public expenditure** and financial framework climate sensitive and increase domestic resources for adaptation in the mid- and long term expenditures frameworks;
- integrate climate change into the **budget cycle**, and secure new and additional domestic funds for NDC implementation, f. i. by divesting into and taxing high-carbon goods&services, introducing payment for environmental services, finance major public works and investments on the basis of their climate fitness and secured maintenance costs... ;
- account for the **value of the climate** in national accounts and calculate the cost of inaction on climate change (% GDP). Evaluate the **loss&damage** costs of climate change to its society and economy (art. 8 PA) and define a ratio between the share of finance to be allocated to adaptation, and the one to be allocated to mitigation;
- establish **contingency funds** that assist vulnerable, low-income individuals to recover from damages associated with extreme weather events or to assist persons having switching from high-carbon to low-carbon employment;
- accredit national entities to international climate funds for **direct access to climate finance**. Among the national candidate entities to apply for climate finance readiness is the National Water and Sanitation Agency and the National Environment Fund. This might entail the creation of a climate change fund or the establishment of a climate change window under the environmental fund to better channel international climate finance;
- promote specialised innovative **financial products**, tailored for the needs of the public and private sectors, for individuals, businesses, municipalities, cities, such as **Paris-aligned bonds** (blue-, desalinisation-bonds) to access financial capital markets at preferential costs, debt-for-climate swaps, blue funds, loan/credit products for energy saving or energy efficient investments and companies, financial support for non-state actors etc;
- hold an **annual conference** with international donors, private investors and development banks to socialise its Climate Finance Strategy and procure climate finance support;
- seek international support and alliances to refine the national **climate diplomacy** and negotiation in view of reinforcing its position at international climate conferences, securing international climate finance, and accessing strategic **climate information** and documents. This includes being in a linguistical (the international climate language is English), technical and IT position (cyber security, band with, open access, satelites imagery ...), so as to access and exchange this information and documents in a timely and comprehensive manner.

## Technology development and transfer

Under the Paris Agreement, high-income countries have committed to provide technology transfert and capacity building to low and middle income countries. Specific national needs include:

- overcoming barriers to the diffusion of appropriate low-carbon technologies;
- involvement of the private sector;
- support to develop a comparable, standardised, reliable climate vulnerability index, taking national circumstances into account;
- availability of satellite, radar, drone and other international climate observation data, statistics and digital management systems;
- continued mutual learning between national and international research and academia.

The three later are crucial for the atlantic archipelago in order to build and domesticate an insularity-adapted climate information systems.

Cabo Verde specifically calls upon the international community to act urgently to scale-up carbon efficient technologies for air and maritime transport, which are vital for the islands connectivity, supply and prosperity. Advances are also required in the areas of pumped storage, wave-energy generation, ocean carbon storage solutions in order to reduced uncertainties, potential environmental risks and costs.

**Non-market approaches** (NMA) (Art 6.8) can be used to organise international bulk purchasing of f.i. technology, in order to drive down the cost of climate technology transfer.

In order to structure this technology and knowledge support, Cabo Verde will undertake to prepare a Technology Needs Assessment.

## Enhanced ambition instruments

Cabo Verde strongly supports all three instruments on enhanced ambition provided in Art. 6 of the Paris Agreement. This includes the mitigation mechanism (Art. 6.4) as well as bilateral cooperative approaches (Art. 6.2) applied to, in particular, the energy and mobility sectors, with a view to meeting the targets marked in this NDC update as conditional on adequate international support.

Cabo Verde also intends to pilot integrated, holistic and balanced **non-market approaches** (Art. 6.8) targeting adaptation benefits for rural communities (access to clean water and healthy soils) as well as interventions under Art. 6.9 linking climate to sustainable development, for instance on sustainable tourism and blue habitats (ecosystem services from coastal wetlands and marine resources).

In summary, Cabo Verde shall enhance transparency, governance and support and report information necessary to track progress made in implementing and achieving the NDC. Box 6 and last below summarises the next steps to be undertaken by Cabo Verde for compliance with the Paris Agreement and transitioning to the ETF, taking due note of the flexibility provisions and of the fact that as a SIDS, the country may submit relevant information at its discretion.



Box 6: Cabo Verde's next steps for compliance with the Paris Agreement<sup>10</sup>

PA Priority for Cabo Verde	Implications for Cabo Verde	State of planning
Article 4 NDCs and LT-LEDS	<p>Prepare and submit progressively more ambitious NDCs every five years.</p> <p>Track progress in achieving the NDC</p> <p>Formulate a long-term low emissions development strategy (LT-LEDS)</p>	<p>✓ NDC 2015 done</p> <p>✓ NDC 2020 done</p> <p>➔ 2021: adopt NDC Implementation Road Map and track progress</p> <p>➔ 2022: start elaboration of LT-LEDS in conjunction with next PEDS</p> <p>➔ 2025 submit updated NDC</p>
Article 6 Market and non-market mechanisms	<p>Consider participating in mitigation projects that generate credits or not (internationally transferred mitigation outcomes - ITMOs,) in order to comply with the NDC</p>	<p>➔ 2022: implement national Climate Finance Strategy</p>
Article 7 Adaptation	<p>Present and periodically update a communication on adaptation that may include priorities, implementation support, plans and actions. (either as a NAP, in an NDC, in a National Communication)</p>	<p>✓ NAPA 2008 done</p> <p>➔ 2021: adopt NAP and NAP Implementation Road Map and track progress</p>
Art. 8 Loss&Damage	<p>Enhance understanding of adverse effects of and adaptation to climate change, with possible support for themes related to early warning, emergency preparedness, slow onset events, permanent loss&amp;damage, risk management and insurance, non-econ. losses, resilience</p>	<p>➔ 2022: establish loss&amp;damage costs</p>
Article 9 Financing	<p>As a SIDS, Cabo Verde should receive enhanced access to funding available internationally for adaptation and mitigation measures to climate change</p>	<p>✓ ongoing</p> <p>➔ 2022: amplify via the National Climate Finance Strategy</p>
Article 10 Technology development and transfer	<p>As a SIDS, Cabo Verde should receive enhanced access funding available internationally to support the strengthening of cooperative action in terms of technology development and transfer.</p>	<p>✓ ongoing</p> <p>➔ 2023: undertake a Technology Needs Assessment</p>
Article 11 Capacity	<p>As a SIDS, Cabo Verde should receive enhanced access funding available internationally for training with the objective of implementing the PA, starting by taking stock of national needs.</p>	<p>✓ ongoing</p> <p>➔ 2022: amplify via the National Climate Finance Strategy</p>
Article 12 Education and Awareness raising	<p>The country should improve education, training, public awareness, public participation and public access to information on climate change.</p>	<p>✓ ongoing</p> <p>➔ 2022: adopt new Climate Governance and Action for Climate Empowerment</p> <p>➔ 2022: set up Citizen's Forum</p>
Article 13 Enhanced Transparency Framework	<p>The country should set up an ETF, although with some flexibility for SIDS.</p>	<p>✓ 1<sup>o</sup> NIR; 1<sup>o</sup>, 2<sup>o</sup>, 3<sup>o</sup> NC 1995-2017 done,</p> <p>✓ 4<sup>o</sup> NC and BUR ongoing</p> <p>➔ 2022: adopt new Climate Governance</p> <p>➔ 2022: submit BUR</p> <p>➔ 2024: submit 4<sup>th</sup> NC, NIR and 1<sup>st</sup> BTR</p>

<sup>10</sup> Box adapted from the Report on the Implementation of the PA in Cabo Verde, GET2C, Nov 2019