TECHNICAL ASSISTANCE REPORT

CABO VERDE

Climate Policy Diagnostic

SEPTEMBER 2023

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Fiscal Affairs Department

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Abbreviations and Acronyms

AA SE4ALL	Action Agenda for Sustainable Energy for All
AdR	Água de Rega SA (Irrigation Water Company)
ADS	Águas de Santiago (Santiago Water Company)
AFR	African Department
ANAS	Agência Nacional de Água e Saneamento (National Water and Sanitation Agency)
ARME	Agência Reguladora Multissectorial da Economia (Multisectoral Economic Regulatory Agency)
BAU	Business-as-Usual
BOP	Balance of Payment
CA	Current Account
CEEE	Code of Energy Efficiency in Buildings
CNAS	Conselho Nacional da Água e Saneamento (National Water and Sanitation Council)
CPAT	Climate Policy Assessment Tool
C-PIMA	Climate Public Investment Management Assessment
CPME	Carta Política para Mobilidade Elétrica (Policy Charter for Electric Mobility)
DGTR	Direção Geral dos Transportes Rodoviários (General Directorate of Road Transport)
DNA	National Directorate of Environment
DNP	National Directorate of Planning
DRM	Disaster Risk Management
ELECTRA	Empresa de Electricidade e Água (Electricity and Water Company)
ENRRD	National Strategy for Disaster Risk Reduction
EV	Electric Vehicle
FAD	Fiscal Affairs Department
FAO	Food and Agriculture Organization
FNE	Fundo Nacional de Emergência (National Emergency Fund)
GDP	Gross Domestic Product
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)
IRENA	International Renewable Energy Agency
LULUCF	Land Use, Land Use Change, and Forestry
MAE	Ministry of Agriculture and Environment
MFSI	Ministry of Family and Social Inclusion

MITE	Ministry of Industry, Trade, and Energy
MOF	Ministry of Finance and Business Development
MTT	Ministry of Tourism and Transport
NAP	National Adaptation Plan
NCC	National Climate Council
NCECA	National Council for the Environment and Climate Action
NDC	Nationally Determined Contribution
PANER	National Action Plan for Renewable Energy
PEDS II	Plano Estrategico Desenvolvimento Sustentavel II
PEEE	Energy Efficiency Project in Buildings and Equipment
PESER	Strategic Sector Plan for Renewable Energy
PNAEE	National Action Plan for Energy Efficiency
PNSE	Programa Nacional para a Sustentabilidad de Energética (National Program for Energy Sustainability)
RE	Renewable Energy
SDG	Sustainable Development Goals
SIDS	Small Island Developing States
SNPCB	National Civil Protection and Fire Service
SOE	State Owned Enterprise
SSN	Social Safety Net
SSPs	Shared Socioeconomic Pathways
ZDER	Renewable Energy Development Zones

Preface

At the request of Mr. Olavo Correia, Deputy Prime Minister and Minister of Finance and Business Development of Cabo Verde, a team from the IMF's Fiscal Affairs Department (FAD) undertook a comprehensive assessment of climate fiscal policies during the period from August 21 to September 13, 2023. The mission team was led by Katja Funke and comprised Alberto Garcia Huitron (FAD), and Didier Tabaro (African Department (AFR)).

The team met Vice Prime Minister and Minister of Finance Dr. Olavo Avelino Garcia Correia and Minister of Transport and Tourism Dr. Carlos Jorge Duarte Santos, and senior officials from Ministry of Finance and Business, the Ministry of Agriculture and Environment, the Ministry of Industry, Trade, and Energy, the Ministry of Tourism and Transport, the Ministry of State, Family, Inclusion and Social Development, Direção Geral dos Transportes Rodoviários (DGTR), the Agência Reguladora Multissectorial da Economia (ARME), Agência Nacional de Água e Saneamento (ANAS), Instituto Nacional de Meteorologia e Geofísica (INMG), National Social Registry Management Commission, Instituto Nacional de Gestão do Território (INGT), Empresa de Electricidade e Água (Electra), Águas de Santiago (ADS), and private stakeholders from Caixa Económica de Cabo Verde, and Banco Comercial do Atlântico. The mission also met with the World Bank.

The mission is grateful for the efficient organization of the mission from Ms. Annyka de Pina Mendes, Mr. Carlos Jose Oliveira Bentub, and Mr. Jose Felix Delgado. In addition, the mission would like to thank the IMF Resident Representative Mr. Rodrigo Garcia-Verdu for the efficient coordination and support provided before and during the mission; and to Ms. Alexandra Antunes, Ms. Maria Angela Ferrari, Mr. Bruno Oliveira, and Mr. Jeffery Hessney for their excellent translation and interpretation services.

This report contains the mission's preliminary findings. It will be subject to review at IMF headquarters and updated to reflect feedback received from the authorities.

Executive Summary

Cabo Verde faces development challenges from multiple structural factors, including insularity, territorial discontinuity, fragility of ecosystems, and scarcity of natural resources, namely water and arable land. The resulting reliance on external provision of key resources, including food and energy, exposes the country to global market fluctuations, which affect especially the vulnerable and poor.

Climate change implications are amplifying these development challenges. Cabo Verde has suffered from several climate hazards events, including droughts and floods and its geography and the concentration of activity along the seashore puts the economy and the population at risk from tropical storms and sea level rise.

Cabo Verde addresses water scarcity more and more through energy intensive desalination, using electricity produced largely by thermal power plants, which depend entirely on imported fossil fuels. The high energy prices directly impact the cost of water production, building an energy-water-climate nexus. However, solar and wind energy, for which Cabo Verde has ample potential could provide a cheaper source of energy. While the country's contribution to global greenhouse gas emissions is negligible, the transition to Renewable Energy (RE) is key for both, addressing both development challenges and preparing for the implications of climate change. Thus, climate change does not change the policy areas that are at the center of the governments' attention but reinforces the need for addressing them and shapes the options for policy design.

The country's national development strategy (PEDS) II sets the policy priorities. These are reflected in the Nationally Determined Contribution (NDC) and its National Adaptation Plan (NAP), which Cabo Verde submitted under the UNFCCC as a signatory to the Paris Agreement. Cabo Verde commited to reduce emissions by 18 percent in comparison to business-as-usual (BAU) by 2030. While the NDC and NAP lay out broad policy intentions, sectors define their detailed objectives and policy measures in sectoral plans. For key sectors, including energy and water these plans are currently being updated to reflect important new developments regarding demand and supply for energy and water. Given the interdependence of these two sectors, the coordination of sectoral plans, which remains a challenge, would need to be improved.

While the energy sector is managed at the national level and the water sector at the municipal level, both sectors face similar structural challenges. Energy and water tariffs have not covered the cost-of-service provision and the publicly owned utilities accumulated losses which resulted in a financially non-sustainable situation for several entities, including the national electricity company and several municipal water companies, resulting in a low-quality low-tariff circle. Important reforms are ongoing in both sectors to address these challenges.

To enhance the viability and performance of the energy sector, ELECTRA, the national electricity and water company separated the electricity and water business and started the unbundling of electricity services. The latter will be an important step towards creating a transparent and competitive environment conducive for private sector investment in energy production. To this end, it will be important that the publicly owned transmission and distribution companies are put on financially sound footing and managed efficiently, to make them a reliable par for private sector investors in the sector, which will have to rely on the public sector entity as the single buyer and off taker. The pace for the onboarding of renewable energy is constrained by the grid infrastructure. Without further investment, Cabo Verde will be able to move to about 35 percent renewable energy, far below the 2030 objective of 54 percent. Important public infrastructure investment, including in storage, will be required to move beyond 35 percent renewable in the energy mix. The coordination required to

synchronize the strengthening of grid infrastructure and the expansion of renewable energy capacity is exacerbated by the segregation of the grids, which need to be managed on an island-by-island basis.

Operations of the water sector have been consolidated, moving from a municipality-by-municipality approach to a multimunicipality island-by-island setup. Operators are appointed for each island and are responsible for the operation of the distribution system. Several important operators, including the largest one, which is responsible for Santiago Island are running considerable technical and commercial losses, losing up to 60 percent of generated water in the distribution. In combination with a tariff structure that does not allow to recover the full cost of service provision, these losses are leaving the operators in a financially unsustainable situation. Addressing the technical losses will require substantial investment in distribution infrastructure. To motivate these investments and potential increases in water tariffs, the cost of the losses and their sources need to be identified and made transparent.

Operators in the energy and water sector should be compensated for the cost-of-service provision either through the tariff, which might require increasing electricity and/or water tariffs, or through a combination of the tariff and a government transfer from the budget in case the government regulates the tariff, making the service provision a quasi-fiscal activity. Putting the sector on a sound economic footing and allowing the operators to run their organizations under commercial-like terms, can enhance efficiency and creates transparency and competition, providing a conducive environment for private investment in the sectors. In addition, introducing a moderate carbon tax would incentivize the reduction of emissions and could provide extra revenues. It would, however, also negatively impact economic growth unless revenues are channeled back as productive investment.

Adverse implications of any tariff adjustment on the vulnerable or poor should be compensated through targeted transfers from the social safety net. To this end, the design of the social safety need could be strengthened by expanding the coverage of the unified social register. The overall cost to the government of introducing higher tariffs while compensating the vulnerable and poor can be neutral while improving the situation of the households that receive compensation. Compensation measures can also be designed to compensate the vulnerable and poor for the impact of the tariff increase while providing extra revenues to the government. A careful design of such a reform and the implementation of a well-designed communication strategy is critical for ensuring the full benefit while avoiding social and political opposition to the reform.

The government faces some challenges in implementing efficient structures for coordinating and managing climate change related policies and for disaster risk management. Both functions require strong leadership and cross government coordination, which is best provided by a coordination council at the level of the Council of Ministers or under the Prime Minister’s office. This councils could also promote the government wide awareness of the implications of climate change and for the need to build resilience to better manage these challenges. A key condition for an effective preparation for climate change implications is to disseminate information regarding what to expect from climate change, including by creating and sharing climate scenarios relevant to Cabo Verde and hazard vulnerability maps that include potential climate related hazards consistent with the climate scenarios.

Overall, the government has taken important steps towards sector-by-sector planning, including by taking into account some aspects of climate change. More would need to be done to ensure that climate change implications are fully embraced and to foster cross sector consistency of policy measures in general and related to the long-term vision needed in light of climate change.

The mission’s recommendations, which have been designed to be a feasible progression of current policies given capacity constraints,are summarized below and Annex I provides a draft action plan.

Recommendations

Energy		
1.1	As part of the update of the Electricity Master Plan, define the electricity sector transition consistent with (i) projected energy needs from across the economy and (ii) commitments under the NDC	High priority
1.2	Enhance financial stability, transparency, competition, and efficiency of the electricity sector, creating conditions conducive to private investment and promoting the energy transition	High priority
1.3	Consider revising the electricity pricing structure to incentivize energy efficiency and achieve full cost recovery while protecting the poor and vulnerable	Medium priority
Water		
2.1	Address losses in the water sector to move towards an economically and ecologically efficient water management	High priority
2.2	Ensure economic sustainability of water sector and address service quality issues, creating room for tariff adjustments	High priority
2.3	Consider revising water tariff structure to achieve full cost recovery from all or part of the users while compensating poor and vulnerable households with social transfers	Medium priority
2.4	Improve coordination of planning within the sector and with other sectors	High priority
Social Safety Net (SSN)		
3.1	Strengthen the social safety net to enable the efficient support of poor and vulnerable in the context of energy and water sector reforms, and to prepare for potential support needs due to climate change related challenges	Medium priority
Disaster Risk Management (DRM)		
4.1	Strengthen leadership for DRM to cover and effectively manage the entire DRM cycle	Medium priority
Climate change management coordination, information, and governance		
5.1	Strengthen the institutional framework for managing climate change and design and implement efficient procedures for coordination	High priority
5.2	Create a common understanding of and awareness for climate change and climate change risks within government	High priority

I. Context

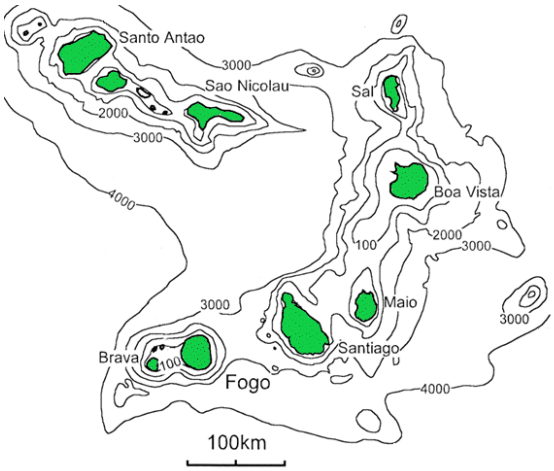
A. Development Challenges and Climate

1. Cabo Verde faces development challenges from multiple structural factors, including insularity, territorial discontinuity, fragility of ecosystems, and scarcity of natural resources, namely water and arable land. The country's geography including 9 inhabited islands and several islets about 550 kilometers off the coast of Senegal, causes challenges of internal and external connectivity and has significant consequences for infrastructure and service provision, including electricity (Box 1). The economy suffers from a poor natural resource base, including serious water shortages exacerbated by cycles of long-term drought which has adverse implications for agriculture and tourism, two key activities in Cabo Verde.[1]

Box 1. Cabo Verde Economic, Social, and Geographic Characteristics

	Value added (% of GDP) 2021 (2018)	Employment (% of total employment) 2021 (2018)
Agriculture	4.4	11.0
Industry	25.1	22.2
Service	57.3 (74)	66.9 (65)
o/w tourism	(45)	(39)

Source: https://data.worldbank.org



Island	Largest Settlement	Population (%)	Extension (km2)	Agriculture of total agriculture area	Tourism of total tourism
Santo Antao	Porto Novo	7.4%	779	16.0%	3.4%
Sao Vicente	Mindelo	15.3%	227	0.3%	6.0%
Sao Nicolau	Ribeira Brava	2.5%	380	3.4%	0.3%
Sal	Espargos	6.9%	216	0.0%	47.9%
Boavista	Sal Rei	2.6%	620	0.4%	28.8%
Maio	Vila do Maio	1.3%	269	0.6%	0.2%
Santiago	Praia	55.8%	991	52.5%	11.2%
Fogo	São Filipe	6.9%	476	15.8%	1.5%
Brava	Nova Sintra	1.2%	67	1.1%	0.2%

Source: 2021 Census

[1] World Bank, 2019, Country Partnership Framework

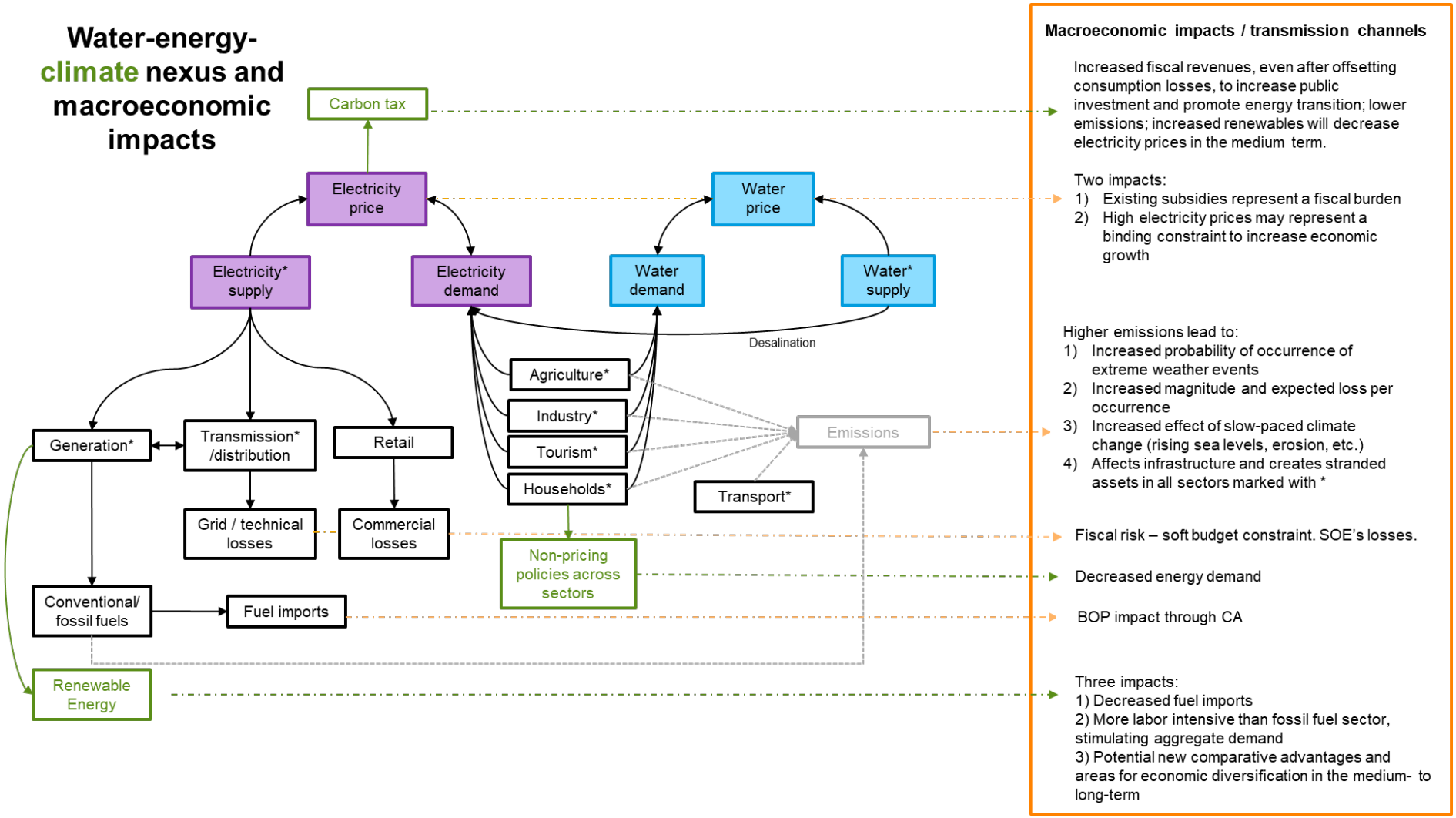
2. **The resulting reliance on external provision of key resources, including food and energy, exposes the country to global market fluctuations, which affect especially the vulnerable and poor**. Cabo Verde relies heavily on thermal power generation with imported petroleum products constitute about 80 percent of total energy supply, which results in high energy costs.[2] The country has no permanent surface fresh water sources and ground water sources are limited and have to be managed carefully to avoid depletion and saline intrusion. Consequently, desalination is already the primary method of producing freshwater, in urban areas and tourist destinations. Desalination is energy intensive, subjecting water supply to high energy prices. Agriculture in Cabo Verde is predominantly informal rainfed subsistence family production, formal agriculture contributes less than 5 percent to Gross Domestic Product (GDP) and the country imports 80 percent of food.[3] The government aspires to modernize the agriculture sector, creating more employment opportunities, and increasing its contribution to GDP. However, in the context of droughts and increasing water scarcity, agriculture has to rely on desalination for the sourcing of irrigation water. Consequently, small hold farmers and agriculture sector development are affected and constraint by high energy prices. Together, this leaves energy production and food provision highly exposed to international oil and food prices, affecting disproportionally the poorest and most vulnerable households, increasing food insecurity, and aggravating inequality. In addition, the tourism and hotel industry, which is the key contributor to GDP and employment, depends on fresh water sources and food imports.[4]

3. **Climate change implications are amplifying these development challenges, building an energy-water-climate nexus**. To this end, changing precipitation patterns are aggravating water scarcity, increasing the need for and cost of the provision of water for human consumption and irrigation, which the government attempts to address by expanding energy intensive desalination. The combination of an increasing need for desalination, a growing economy, and rising living standards, leads to higher energy demand. Altogether, this puts the climate-water-energy nexus at the center of policy and development considerations. In addition, the tourism sector, which is the driver for economic growth, is threatened by slow-onset climate change. The sector in its current structure is driven by large beach resorts on two islands, where tourism infrastructure will be impacted by sea levels rise, affecting the long-term prospects for investment in this form of tourism, potentially adversely implicating the county's attractiveness for private investment in the sector.

4. **The inseparability of energy and water, i.e., of mitigation and adaptation, comes with significant challenges but, if well managed also offers important opportunities**. The complexity of energy and water sector challenges and reform needs and the interconnection between these services and other key sectors, including agriculture and tourism requires strong leadership from and coordination within the government (Figure 1). Energy transition, replacing costly and emission intensive thermal energy with lower cost renewable energy (RE) sources, will improve the availability and affordability of energy and water while reducing emissions.

[2] International Renewable Energy Agency (IRENA), 2022, Cabo Verde Energy Profile
[3] Food and Agriculture Organization (FAO), 2019, Climate-Smart Agriculture in Cabo Verde; World Bank, DataBank
[4] In pre-COVID times (2018) tourism accounted for 45 percent to GDP and 65 percent of employment. The sector is still recovering. (www.statista.com).

Figure 1. Climate-Energy-Water Nexus



Note: Sectors marked with * are sectors whose infrastructure is vulnerable to the impacts of climate change

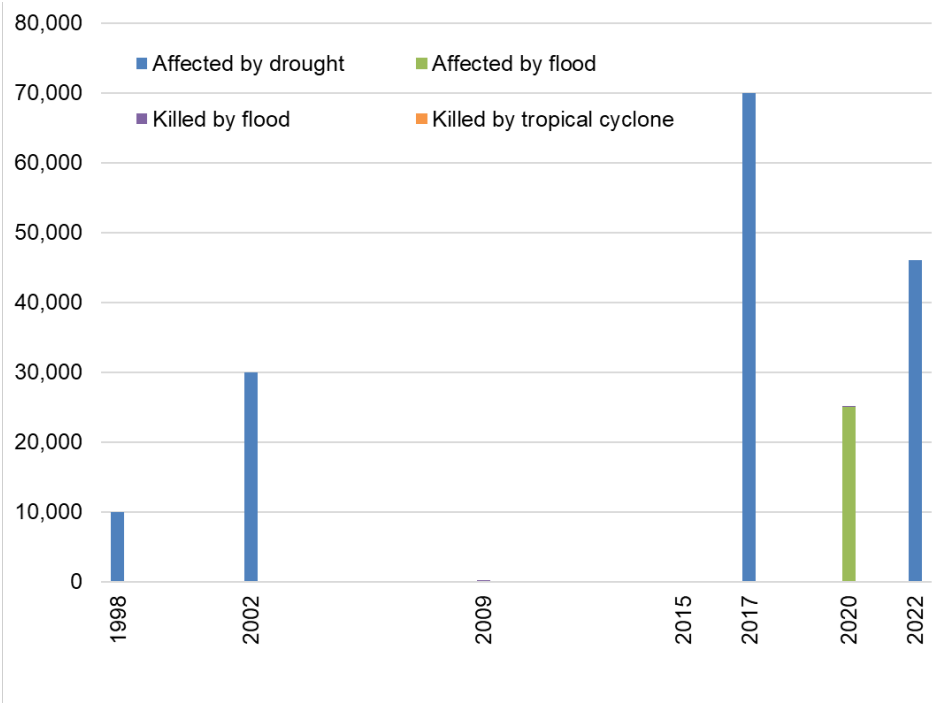
Source: IMF Staff

5. This report puts the two sectors that are key for economic and social development and for managing climate change implications, i.e., energy and water, at its center. It assesses intra and inter sectoral challenges in the context of climate change and provides policy options for strengthening the management of energy transition and improving water supply. To this end, the report considers the legal and institutional framework for both key sectors as well as for supporting functions such as Disaster Risk Management (DRM) and the social safety net (SSN). Throughout the report, important linkages to other key sectors, such as agriculture and tourism are highlighted. Climate change management consideration for public financial management, in particular public investment management, have been covered by a recent Climate Public Investment Management Assessment (C-PIMA) mission and are thus not covered in this report.[5] The report references the C-PIMA assessment and recommendation where relevant from a climate policy perspective.

B. Climate Change Implications

6. Cabo Verde is vulnerable to climate related natural hazards. Due to the fragility of its ecosystems, Cabo Verde is affected by the implications of 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 tropical cyclones, among others.[6]

Figure 2. Number of People Affected and Killed by Climate Related Natural Disasters 1990-2022



Source: https://public.emdat.be/

[5] IMF, 2023, Cabo Verde Climate Public Management Assessment

[6] World Bank, 2023, Sailing Rough Seas - Accelerating Growth and Fostering Resilience to Climate change in Cabo Verde; Cabo Verde, 2021, National Adaptation Plan; Cabo Verde, 2021, National Determined Contributions

7. Climate related hazards have had and are expected to continue to have severe impact in Cape Verde. Since 1990, four severe droughts (1998, 2002, 2017, 2022) affected on average about 40,000 people, and a large flood in 2020 affected 25,000 people (Figure 2). While, about 85,000 people died during several droughts in the first half of the last century, more recent drought events did not cause fatalities, reflecting the strengthened capacity to deal with this type of incidence. While tropical cyclones only occur occasionally – on average, they happen about 3 times a year but mostly don't make direct landfall – if they make landfall, they can cause loss of life and substantial damage (Table 1). According to the World Bank disaster risk profile, floods and landslides pose the most significant and recurrent economic risk, cyclones cause economic damage and affect the population, and droughts can cause substantial loss to agricultural production, impacting livelihoods.

Table 1. Hydrometeorological Disasters in Cabo Verde 1900—2022

	Subtype	Events Count	Total Deaths	Total Affected	Total Damages ('000 USD)
Drought	Drought	12	85,000*	156,093	-
Storm	Tropical cyclone	3	41**	7,600	4,100
Flood	Riverine flood	1	3	150	-
	Other	1	1	25,000	-
Volcanic activity	Ash fall	1	-	1,300	-
	Lava flow	1	-	2,500	-
Epidemic	Bacterial disease	1	245	12,344	-
	Viral disease	1	6	20,147	-
Insect infestation	Locust	2	-	-	-

*Note: Drought related loss of life occurred in the context of droughts happening before 1950. Reliability for historical data might be limited.

**Note: Tropical cyclone related loss of life occurred in the context of cyclones happening after 1980.

Source: https://public.emdat.be/

8. Climate change is expected to amplify the implications of climate related hazards. Cape Verde´s natural vulnerabilities, along with their social and economic implications, are very likely to be exacerbated by climate-related disruptions in the next decades. These include more frequent extreme events like storms, floods, and droughts, as well as shorter rainy seasons, with immediate impacts on livelihoods, infrastructure, sanitary conditions, recharge of reservoirs, and crop productivity.

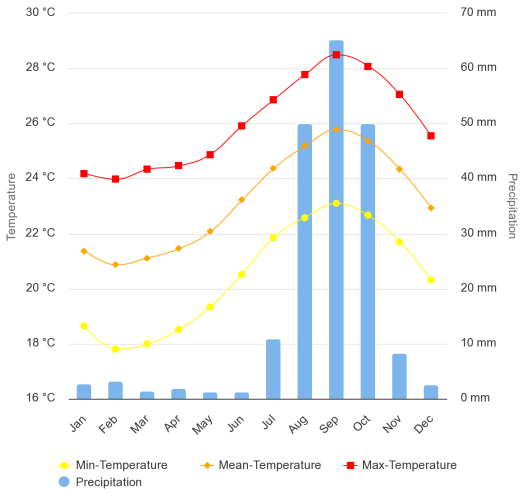
- **Cabo Verde's climate**.[7] Cabo Verde is part of the Sahelian arid belt, and periodically suffer from prolonged droughts and serious water shortages. It has three distinct seasons, a transition season (November to February), a dry season (March June), a rainy season (July to October). The hurricane season usually lasts from early June to late November. The average annual temperature is around 25ºC for coastal areas, reaching 19ºC in areas above 1,000 m. The minimum values between 20ºC and 21ºC, correspond to January to April, and the maximum values of 26ºC to 28ºC in August-

[7] World Bank Climate Knowledge Portal

September (Figure 3). Precipitation varies significantly across the various islands of the archipelago.[8]

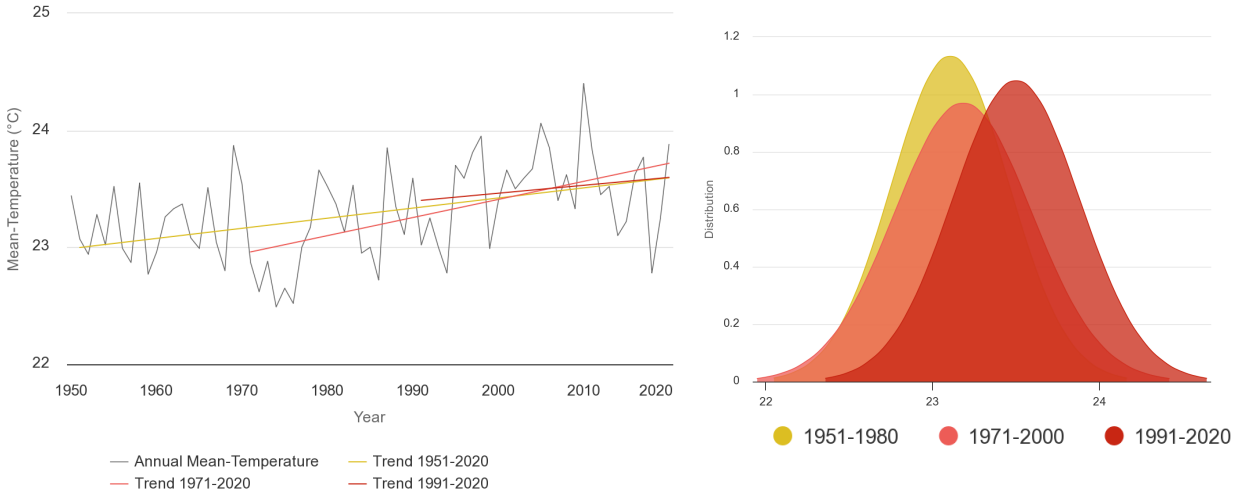
- **Historic climate change trends**.[9] The already observable impacts of climate change on the country include sea level rise (Figure 8), changes in rain patterns, extreme weather conditions, and changes in ocean biophysical conditions (ocean warming). Since 1990, temperature increased by 0.04 percent per year (Figure 4), and annual average precipitation declined by about 2 percent and variability increased (Figure 5).

Figure 3. Monthly Climatology of Temperature and Precipitation



Source: World Bank, Climate Change Knowledge Portal

Figure 4. Mean-Temperature Annual Trends (left) and Change in Distribution of Mean Temperature (right)

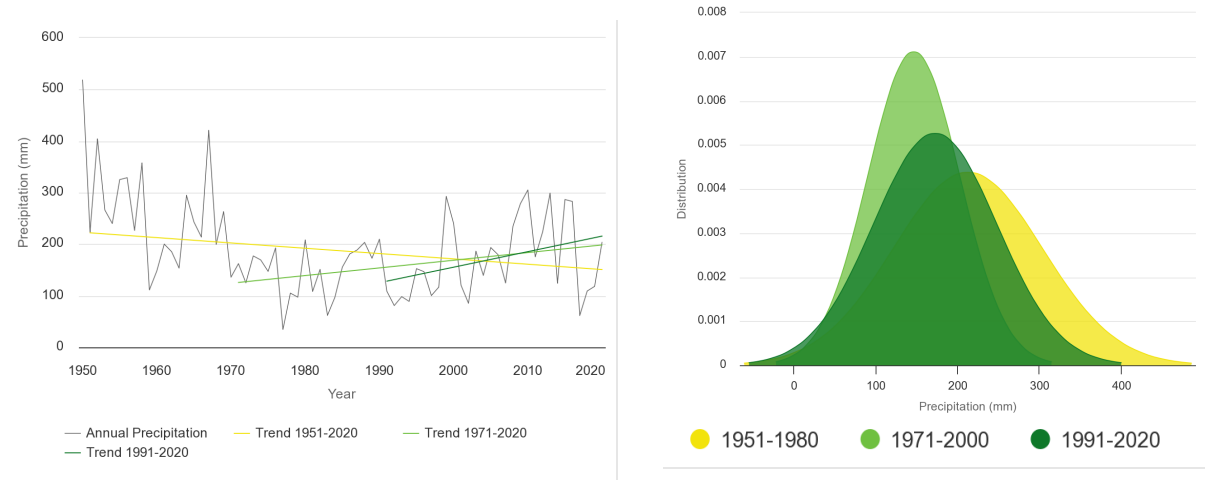


Source: World Bank, Climate Change Knowledge Portal

[8] Source: 3rd NC

[9] World Bank Climate Knowledge Portal

Figure 5. Precipitation Annual Trends (left) and Change in Distribution of Precipitation (right)



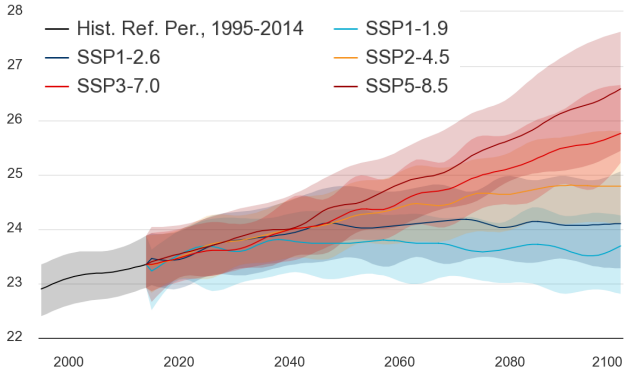
Source: World Bank, Climate Change Knowledge Portal

- **Climate change.**[10] Climate projections vary depending on the Shared Socioeconomic Pathways (SSPs), i.e., which scenarios of projected socioeconomic global changes, is considered.[11] Also, projections under all SSPs, show some uncertainty in the projection (Figure 6). Under SSP2-4.5, the "middle of the road scenario", average temperature is expected to increase by 1°C by mid-century, within the 10-90 percentile, outcomes could vary between zero change and +2°C. Seasonal variability in the expected warming is limited (Figure 7 panel a and b). While average annual precipitation under SSP2-4.5, is projected to remain relatively stable (increasing by less than 5 percent by mid-century and reverting to historical levels by 2100), pattern in precipitation changes are more seasonal and uncertain (Figure 7 panel c and d), with possibilities of precipitation levels during the rainy season four to five times higher than historical levels. Given the implications on precipitation patterns, climate change is expected to further intensify the impacts of floods and droughts.

[10] World Bank Climate Knowledge Portal

[11] Shared Socioeconomic Pathways (SSPs) describe a set of alternative plausible trajectories of societal development, which are based on hypotheses about which societal elements are the most important determinants of challenges to climate change mitigation and adaptation. The scenarios correspond to different levels of estimated warming by 2081-2100: SSP1-1.9 - 1.0-1.8 °C; SSP1-2.6 – 1.3-2.4 °C; SSP2-4.5 - 2.1-3.5 °C; SSP3-7.0 – 2.8-4.6 °C; SSP5-8.5 - 3.3-5.7 °C.

Figure 6. Projected Mean Temperature Multi-Model Ensemble (Reference Period 1995-2014)

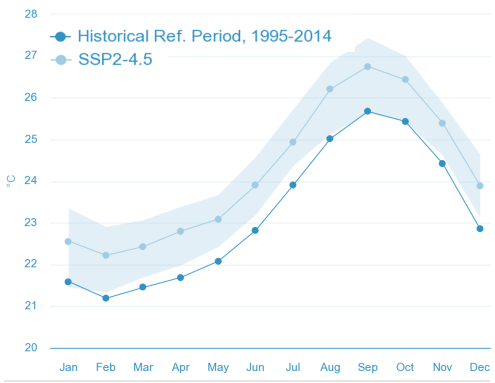


Note: Confidence bounds – 10-90th percentile range
Source: World Bank, Climate Change Knowledge Portal

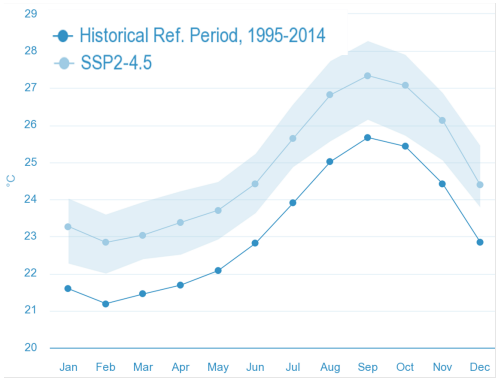
Figure 7. Monthly Projected Climate Indicators Multi-Model Ensemble (Reference Period 1995—2014)

Projected Maximum Temperature, SSP2-4.5

a. 2040-2059 Compared to Reference Period

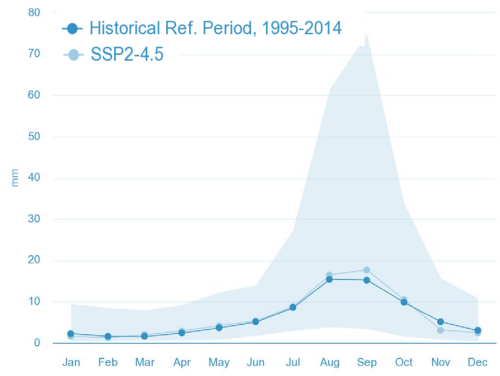


b. 2080-2099 Compared to Reference Period

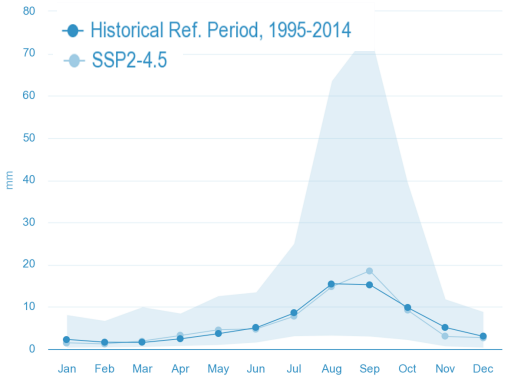


Projected Precipitation, SSP2-4.5

c. 2040-2059 Compared to Reference Period



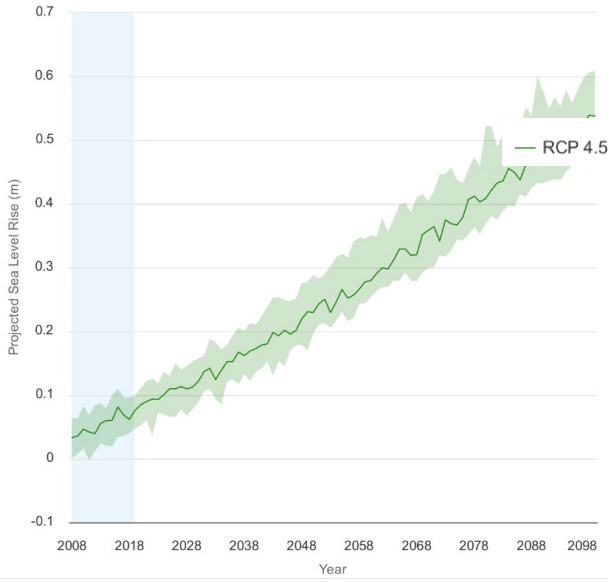
d. 2080-2099 Compared to Reference Period



Note: Confidence bounds – 10-90th percentile range
Source: World Bank, Climate Change Knowledge Portal

- **Sea level rise.** While the central parts of the Cabo Verde islands have elevations reaching around 1000 meters, lowlands in the coast are vulnerable to a projected rise in sea level (Figure 8) as well as to extreme and adverse climate events. The country is already witnessing loss of coastal territory due to climate related phenomena, including storms with high winds, heavy rains, and tidal waves. Coastal communities (where 80 percent of the population resides), economic operations (especially tourism) and infrastructure are particularly exposed to this type of climate related risk.

Figure 8. Historical and Projected Sea Level Rise[12]



Note: Confidence bounds – 10-90th percentile range
Source: https://climateknowledgeportal.worldbank.org/country/cape-verde/impacts-sea-level-rise

C. Climate Strategies and Policies

9. Climate change does not change the policy areas that are at the center of the governments' attention, i.e., energy, water, and food security and affordability, it reinforces the need for addressing them and shapes the options for policy design. The government embraces that the fight against climate change and for sustainable development are intertwined. Consequently, climate change related considerations are being taken into account in Cabo Verde's national five-year development strategy Plano Estrategico Desenvolvimento Sustentavel II (PEDS II) 2022-2026. Covering the entire economy, the PEDS II aspires to ensure sustainable development while mitigating the implications of current crises, including global spillovers from the Ukraine war, as well as the medium and long-term implications of climate change by building resilience through energy transition, diversification of the economy, and by strengthening social protection.

[12] The Representative Concentration Pathways (RCPs) set pathways for greenhouse gas concentrations and the amount of warming that could occur by the end of the century. It describes different levels of greenhouse gases and other radiative forcings that might occur in the future based on four pathways, spanning a broad range of forcing in 2100 (2.6, 4.5, 6.0, and 8.5 watts per meter squared). RCPs are complementary with the SSPs, but do not include any socioeconomic "narratives".

10. The NDC and the NAP present high level mitigation and adaptation ambitions for key sectors and policy areas [that need to be detailed and costed]. However, neither of the two documents elaborate on concrete actions and measures. While mitigation and adaptation needs are not costed, a USD 2 billion estimate is allocated half and half between the two areas.

- **The 2021 updated Nationally Determined Contribution (NDC), in addition to confirming the government's commitment to energy transition and carbon-neutral development, focuses on resilient infrastructure**. While noting that Cabo Verde's contribution to global greenhouse gas emissions is minimal, the government confirms its mitigation ambitions by updating its targets to reducing emissions by 18 percent in comparison to business-as-usual (BAU) by 2030, while also aspiring to achieve net-zero emissions by 2050. It also stresses the need for strengthening climate resilience by identifying specific contributions for adaptation until 2030 in core sectors, including (i) water; (ii) agriculture; (iii) oceans and coastal zones; (iv) spatial planning; (v) disaster risk reduction; and (vi) health. The NDC does not identify projects and activities and does therefore also not provide a costing of activities by sectors.
- **The National Climate Change Adaptation Plan (NAP) for the timeframe 2022-2030 aims to align with the national development strategy and the NDC**. Within the UNFCCC framework, the role of NAP is to identify medium- and long-term adaptation needs and to develop and implement strategies and programs to address those needs. The Cabo Verde NAP remains at a relatively general level, highlighting some underlying institutional and capacity challenges, without specifying adaptation needs or measures to address such needs.
- **The government is in the process of developing a Climate Action Program**. With the support from LuxDev, the Ministry of Agriculture and Environment (MAE), in a consultative process, is developing a climate action program, which is supposed to make the NDC actionable. While the program is supposed to cover 2022-2025, this process for finalizing the program is ongoing.

11. The identification of concrete policy measures and their implementation relies on sectors and their plans and strategies, which are partly outdated and do not necessarily reflect climate change considerations (Table 9). While the energy sector strategic plans, including the plan for electricity, energy efficiency, and e-mobility, are still valid, an important update of the Electricity Sector Master Plan, which is key to the energy transition, is still being prepared. It is expected that this plan will reflect important updates. The original master plan lacked coordination with key sectors, including the water sector, which has important implications for electricity demand depending on the use and expansion of desalination capacity. Rights and responsibilities in the water sector are well defined by the Water Sanitation Code (CAS) and should be implemented through the National Strategic Plan for Water and Sanitation (PLENAS), which includes projections for water demand and plans for how to address these demands. The PLENAS is currently being updated and important changes to the plans for water sourcing are envisaged. Both, the energy and water sector plans refer to the impact of climate change in general terms but the implications of climate change on the sectors are not specified in detail. Also, while the water and the energy sector are highly interdependent, in the mission's discussions with both sectors, it has been noted by the authorities that the coordination with the other sector is not formalized and that the two sectoral plans are not necessarily consistent. The agriculture sector plan also takes into account climate change implications, aiming to introduce climate smart agriculture practices and increased irrigation. However, the plans for the expansion of the irrigation system are yet to be formulated and quantified and coordination with the water and energy sector would be essential, especially if desalination

is considered for irrigation. The tourism sector plan considers the environmental impact of the tourism sector but does not reflect climate change implications for the sector.

Table 9. Cabo Verde Universe of Climate Policies and Strategies

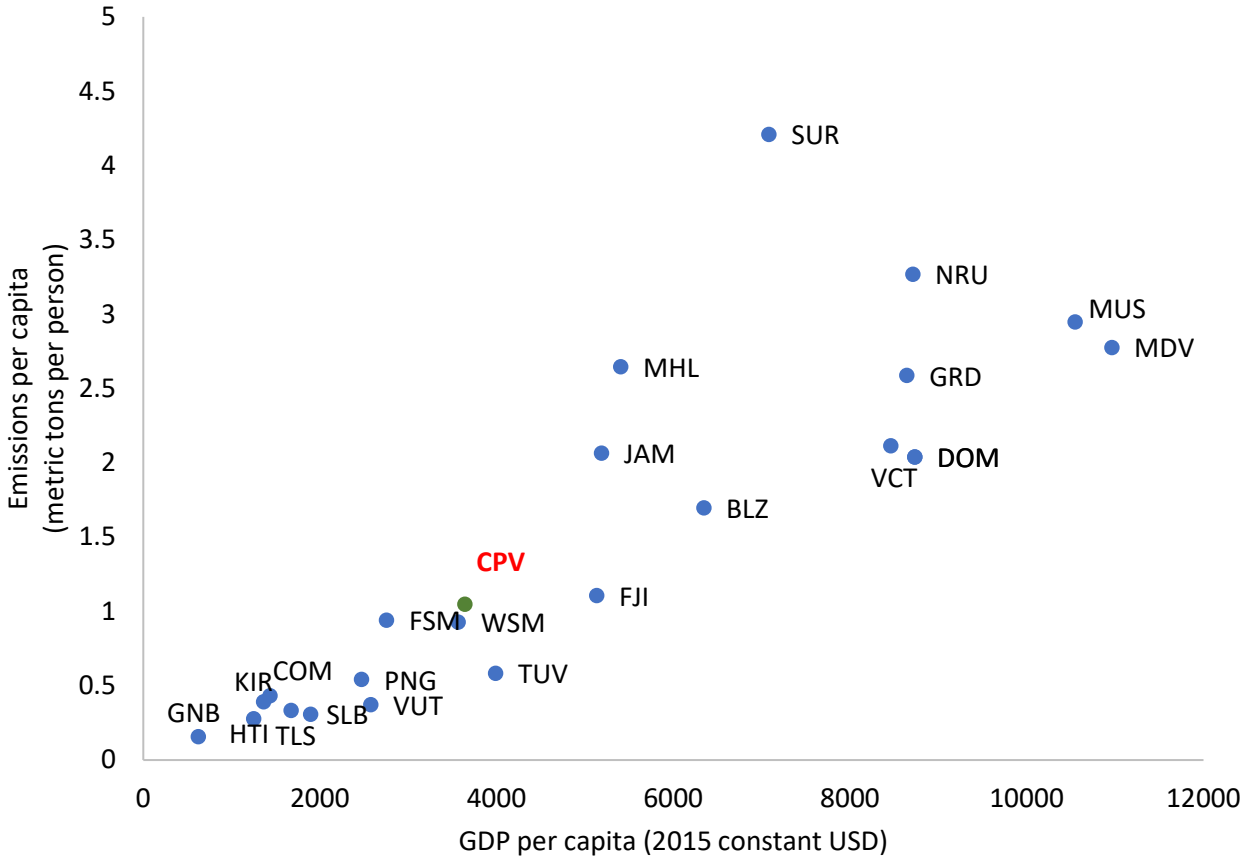
Law / Regulations /Strategy	Objective
International Climate Strategies	
2021 Nationally Determined Contributions (NDC) 2020-2030	It highlights the reasons for updating the NDC in the context of Climate Ambition 2030 and presents Cabo Verde's concrete contributions to Mitigation and Adaptation and the perspective of climate governance for this purpose.
National Adaptation Plan (NAP) 2020-2030	Outline Cabo Verde's National Climate Change Adaptation Plan for the period 2022-2030.
National Development Strategies	
Ambition 2030	The Cabo Verde Ambition 2030 exercise resulted in the Cabo Verde 2030 Strategic Sustainable Development Agenda. It is an overarching instrument to align political subjects and economic and social actors by laying down the foundations of future national, sectorial, municipal, and regional strategic plans. It creates a long-term reference for the various different domestic actors and development partners to support the strategic dialogue for the sustainable development of Cabo Verde.
Sustainable Development Strategic Plan (PEDS II) 2022-2026	The PEDS II defines the government's policy priorities and development program, and as such, is the state's instrument for driving change and accelerating progress to complete the first cycle of Ambition 2030.
National DRM	
National Strategy for Disaster Risk Reduction (ENRRD) 2018-2030	The ENRRD responds to and puts into effect a series of national instruments and policies relevant to the implementation of the various elements and dimensions of disaster risk reduction.
2019 Drought Resilience and Mitigation Program	The Program describes and analyzes the emergency of another consecutive year of drought and poor results of the agricultural year in this country, defining the necessary measures to mitigate its effects, at a time when it is intended to increase the resilience of families and communities, as well as the agricultural sector in the face of climate change.
Energy	
Decree Law 35/2021 National Program for Energy Sustainability (PNSE) 2021-2026	The PNSE established in the PEDS I 2017/2021, aims at interventions of promotion of Energy Efficiency (EE), considered as a critical factor for economic competitiveness and diversification of industrial activity, as well as for the creation of skills for providing services at the level regional and international.
Regulation 39/2019 Electricity Sector Master Plan 2018-2040	The Electricity Sector Master Plan is as a structural document for the development of the Electricity System, considering the main areas of development of the sector: territorial consumption forecasting, new investments and reinforcements in transport and distribution infrastructure of electricity, producer structure (location of plants, size, energy sources and technologies) and network management, institutional and organizational structure.
Regulation No 100/2015 National Renewable Energy Action Plan (PNAER) 2015-2020/2030	The PNAER integrates a triad of public policy documents, with the National Action Plan for Energy Efficiency (PNAEE) and the Action Agenda for Sustainable Energy for All (AA SE4ALL) with an objective of a safe, efficient, sustainable energy sector without dependence on fossil fuel in Cabo Verde
Joint Ordinance No. 24/2020 Approving	The CEEE details some principles gaps that needed to be filed from the Technical Building Code (CTE) published by Ordinance No. 4/2012 of 12 January regarding principles to be considered in

Transport	
2018 Policy Charter for Electric Mobility (CPME)	The CPME defines the government's vision for the gradual replacement of the current fleet of vehicles equipped with internal combustion engine (gasoline or diesel based) by clean electric vehicles (EV), without GHG emission, by 2050. Main goals are defined as (i) replacing all vehicles equipped with internal combustion engine for EV by 2050, (ii) putting the national recharge infrastructure in place by 2030, and (iii) moving to a public administration fleet of 100 percent electric vehicles in 2030. The policy calls for investment and tax incentives to encourage the transition to EV without costing these measures.
Water	
Legislative Decree No. 26/2016; Tariff policy of the Water and Sanitation Sector	The policy sets the rules and guidelines for how tariffs (prices or fees) are determined and applied in the water and sanitation sector. Applies universally to all entities or organizations involved in providing water supply and sanitation services to consumers. It encourage rational water use and considers socio-economic equity.
Resolution No. 10/2015; National Strategic Plan for Water and Sanitation (PLENAS)	It establishes the definition and likely regulations for public systems of water supply and sanitation. Outlines mechanisms to ensure the economic and financial sustainability of water resources management. Regulates the institutional framework related to water resources, including ownership, planning, and utilization. Includes provisions related to water quality standards. Regulates the planning and execution of hydraulic works, which could involve infrastructure like dams, reservoirs, and canals.
Agriculture	
Strategic Plan of the National Agricultural Research System (PE-SNIA) 2017-2024	The strategy aims to increase the income and well-being of population in a sustainable way through the transformation and modernization of the agricultural sector. The objectives include to sustainably improve productivity, competitiveness, and agricultural markets in Cape Verde. The strategy takes climate change into consideration and aims to promote climate resilience and food security through climate smart agriculture. The strategy describes actions and expected results and includes a cost estimate. It is to be implemented through two consecutive four-year action plans.
Tourism	
Resolution No 31/2022 - Tourism Operational Program (POT) 2022-2026	The program is an operational plan aiming to address concerns, challenges, and problems in tourism, and in coordination with other economic sectors, drawing from the recommendations provided for in the Tourism Master Plans drawn up by each island, with a view to meet the government's vision for a sustainable tourism sector. While the program considers the environmental impact of tourism, it does not take climate change implications into account. The measures covered by the program are costed.
Social safety net	
Law No. 131/V/2001 on the Basic law of Social Protection	Defines the bases of social protection as a permanent structure at three levels: safety net, mandatory social protection, and complementary social protection. The safety net is based on national solidarity, reflects a distributive nature and covers the entire resident population that is in a situation of lack or reduction of means of subsistence and cannot fully assume its own protection.
Law No. 41/2020 Creating the Social Inclusion Income	This law creates and determines the eligibility criteria to access the social inclusion income. granted according to the poverty and/or social and economic vulnerability of the household in the social protection system at the level of the safety net.
The Code of Energy Efficiency in Buildings (CEEE)	the building design phase, namely with regard to energy savings, visual comfort, thermal insulation, materials and indoor air quality by the integration of energy efficiency requirements in the construction of buildings, which will allow the reduction of greenhouse gas emissions while ensuring compliance with the health conditions of the buildings.

D. Emissions, Mitigation Commitments, and Emissions Gap

12. Cabo Verde's contribution to global emissions is very small and per capita emissions are at par with Small Island Developing States (SIDS) of similar income level (Figure 9). Globally, Cabo Verde ranks as the 189th largest emitter, contributing less than 0.01 percent to total global emissions. Cabo Verde's emissions per capita are aligned with several SIDS peers, including Samoa and Micronesia. However, it lags compared to Tuvalu, a SIDS with approximately 10 percent higher per capita income, emitting only about half of Cabo Verde's GHG emissions.

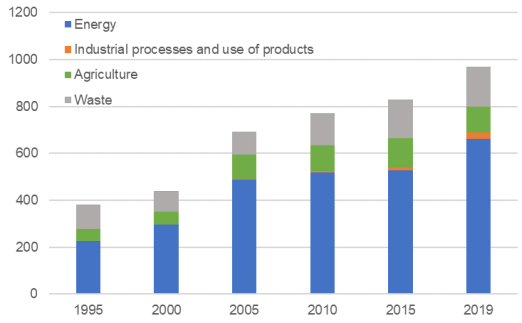
Figure 9. Emissions per Capita in Small Island Developing States (metric tons)



Source: IMF staff using World Development Indicators.

13. Cabo Verde's GHG emissions stem mostly from the energy sector and grew by 150 percent compared to 1995 (Figure 10). The energy sector accounts for the majority of total emissions and contributed most of the historical emission growth, with emissions more than doubling since 1995, primarily attributed to the expansion of thermal generation capacity to meet the growing electricity demand and to the rise in fuel demand for road transportation. In the same period, emissions from agriculture and waste rose by about 120 and 60 percent respectively. In contrast, the industrial sector, to this day, constitutes a relatively small proportion of overall emissions in Cabo Verde, which reflects the structure of Cabo Verde's service-oriented economy.

Figure 10. Historical GHG Emissions in Cabo Verde (in Gg CO2e, excluding Land Use, Land Use Change, and Forestry (LULUCF))



Source: Preliminary National Emission Inventory, 2023.

14. Cabo Verde has made a commitment to reduce emissions by 18 percent in comparison to business-as-usual (BAU) by 2030, while also aspiring to achieve net-zero emissions by 2050 (Table 2). Cabo Verde further committed to increase emission reduction to 24 percent contingent upon international support, encompassing both financial assistance and technological transfers. The 2030 commitments are aligned with Cabo Verde's long-term objective of attaining net-zero emissions by 2050.

Table 2. Cabo Verde's Unconditional and Conditional Objectives Established in its NDC (last updated in 2021)

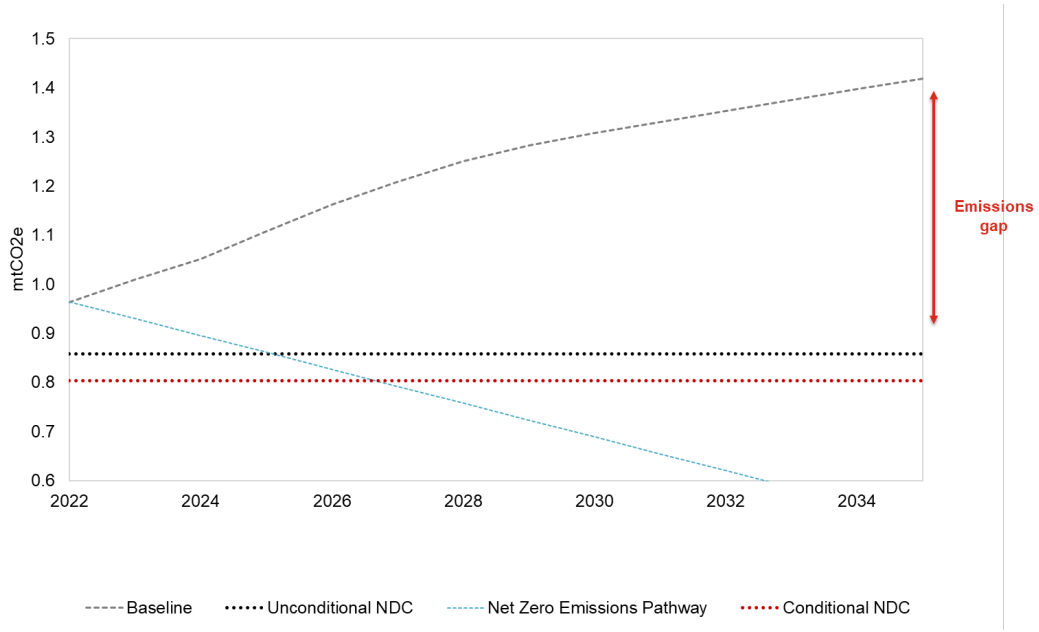
Sector	Unconditional objective	Conditional objective
Economy-wide emissions	• 18% below BAU.	• Up to 24% below BAU.
Electricity	• 30% renewable energy share in the electricity supply in 2025 and up to 50% in 2030.	• 100% renewable energy share in the electricity supply in 2040. • Increase wind energy capacity by installing 10 MW wind farm for Santiago by 2022 and 60 MW by 2030. • Increase solar PV energy by installing an additional 150 MW by 2030. • Install a waste-to-energy biogas landfill in Santiago by 2025 and construction of eight biogas plants across islands by 2030.
Transport	• Electrify at least 25% of Cabo Verde's land-borne transport fleet (new vehicles) by 2030 by resorting to renewable energy sources.	• By 2050, fully replace all residual thermal vehicles (gasoline/diesel) with electric vehicles (EV). • By 2025, establish the procurement rules for the acquisition of 100% EVs by institutional entities and have at least 50% of EVs in the new acquisition of urban collective transport. • By 2030, the national public recharge infrastructure is fully implemented. • By 2030, the public administration's vehicle fleet is fully electrified.
Gender		• Operationalize the Action Plan for Gender and Energy by 2030, support the emergence of local businesses and promote economic opportunities for women particularly in the field of renewable energy to represent at least 20% of the workforce in 2030.

Source: Updated NDC

15. The country's emission trajectory is presently not aligned with the objectives outlined in its NDC (Figure 11). Using the Climate Policy Assessment Tool (CPAT), emissions in 2030 are expected to surpass the NDC unconditional target by 53 percent. In other words, factoring in both economic growth

and population expansion, emissions in 2030 are poised to be 1.5 times the target level of emissions as defined in the NDC.

Figure 11. Cabo Verde's GHG Emission Pathway in a Business-as-Usual Scenario (mtCO2e) vs. NDC Targets



Source: IMF Staff using CPAT.

16. Energy-related initiatives, with a primary emphasis on the power and transport sectors, are of pivotal importance in the pursuit of Cabo Verde's mitigation objectives. To this end, the government is currently directing its attention toward the unbundling of the state-owned enterprise (SOE) ELECTRA (*Empresa de Electricidade e Água*). Additionally, efforts are being concentrated on diminishing energy intensity and fostering energy efficiency, increasing renewable energy deployment, and lowering the carbon intensity of mobility. It's also working to shift towards responsible tourism and circular economy and fostering the natural sink function of ecosystems. However, concrete measures still have to be implemented to meet climate objectives, and additional mitigation efforts will be required especially for transition to RE in the electricity and transport sector.

E. Climate Investment Needs and Financing Gap

17. Achieving the objectives communicated in the NDC and implementing the adaptation programs require substantial financial resources. The updated NDC states that that the incremental financial resources for implementing the policies envisaged by the NDC amount to a minimum of Euros 2 billion for 10 years of climate action, half of the amount being earmarked for mitigation, and half for adaptation. This would be equivalent to about 8 percent of GDP per year between 2020 and 2030, for adaptation and mitigation together.

18. A detailed assessment of domestic contributions and international needs is still pending. The 2021 NDC Implementation Roadmap noted that only a few measures and policies have been costed and that more detail and planning is required for most projects for the costing exercise to be meaningful. To this end, the authorities are in the process of developing the Climate Action Plan and a Climate Finance Strategy and Work Plan.

19. In the context of promoting its development objective, Cabo Verde is seeking the interest of investor and development partners in key sectors. In the context of the International Conference of Partners held in April 2023, the government presented the investment needs related to key sectors under the PEDS II, including energy and water. For the energy sector the government addressed private investors and development partners with the aim of mobilizing Euro 518 million and technical cooperation for wind and solar IPPs, energy storage solutions and grid reinforcement, e-mobility, and energy efficiency measures. For the water and sanitation sector, the government announced financing needs of Euro 132 million to provide access to sustainable energy for mobilization and distribution of desalinated water intended for human consumption (Euro 44 million) and for irrigation (Euro 30 million), and to implement projects at the municipal level to install capacity for the treatment and recovery of wastewater (Euro 36 million), to provide urban waste management (Euro 8 million), and to implement the Health Plan (Euro 14 million).

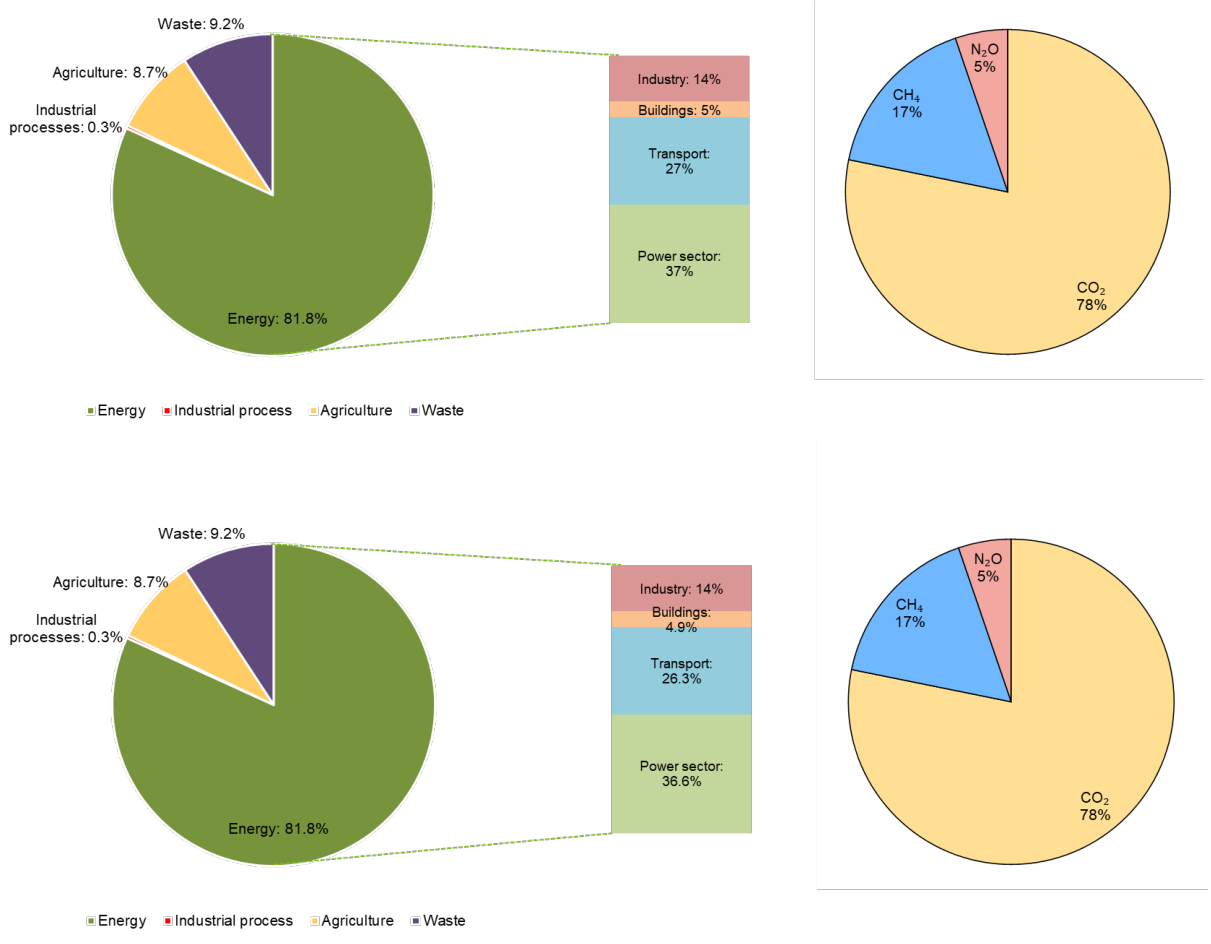
II. Energy

A. Energy Emissions and Mitigation Targets

Current Situation

20. The majority of Cabo Verde's GHG emissions are closely tied to the energy sector, constituting 82 percent of the nation's total emissions, while agriculture and waste account for about 9 percent each. Within the energy sector, the power generation segment is responsible for 37 percent of energy-related emissions, while the transport and industrial sectors contribute 27 percent and 14 percent, respectively. Moreover, approximately 78 percent of GHG emissions in 2019 were directly attributable to CO2 emissions, while methane emissions constituted around 17 percent (Figure 12).

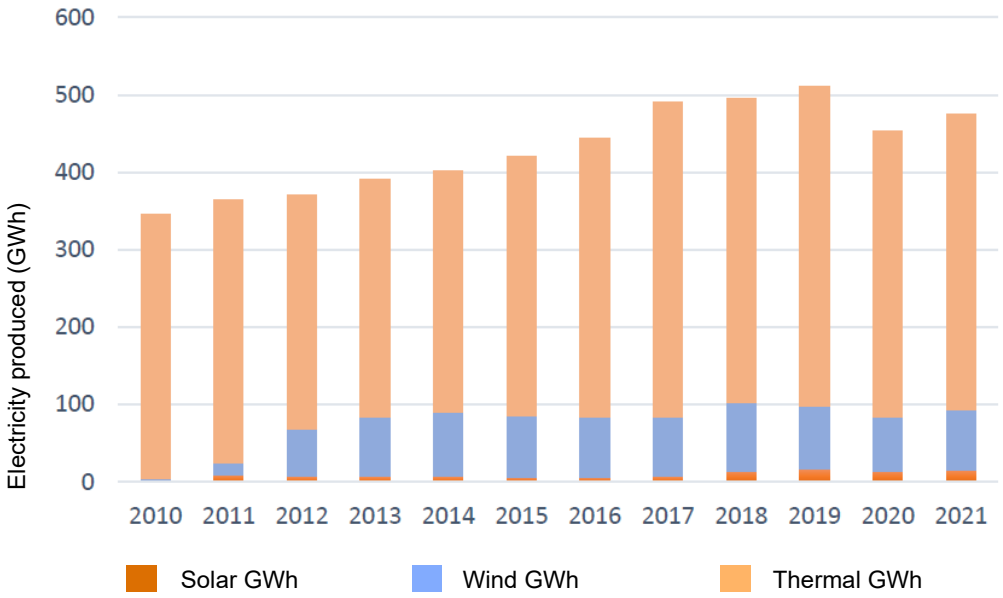
Figure 12. GHG Emissions by Sector and GHG, Excluding LULUCF, 2019



Source: IMF staff using CPAT.

21. Cabo Verde still relies heavily on fossil fuel-based power generation, with RE sources contributing only 17 percent of the power generation (Figure 13). A substantial 83 percent of electricity generation relies on thermal power plants fuelled entirely by imported diesel and other oil derivatives. The remaining electricity generation derives from renewable sources, primarily wind with a minor contribution from solar energy. After major renewable capacity increases in 2012 and 2013, the pace of renewable penetration in Cabo Verde has stagnated.

Figure 13. Historical Electricity Generation by Source, 2010 – 2021



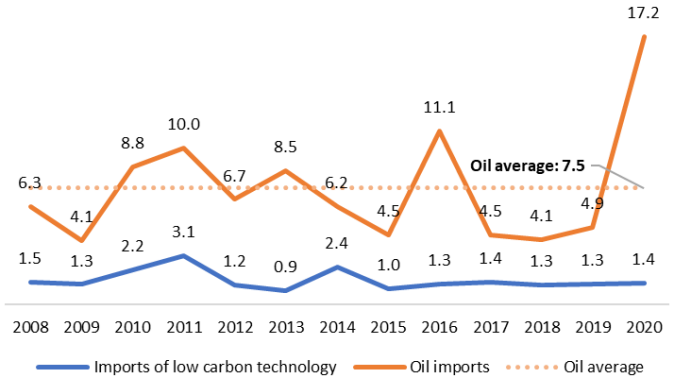
Source: Relatorio preliminar do Inventario Nacional de GEE, 2023.

22. The energy sector has important implications for Cabo Verde's balance of payment (BOP), which will be affected by the energy transition. Thermal based energy generation relies 100 percent on imported fossil fuels. In 2021, refined petroleum imports accounted for 11 percent of the nation's total imports, adding up to USD 93.5 million. This heavy dependence on fuel imports places a substantial strain on Cabo Verde's BOP, rendering it more susceptible to both price fluctuations and supply disruptions. This vulnerability also represents a fiscal risk as the government shields households from pass-through by increasing subsidies to household consumption. Increasing the share of renewables in electricity generation would impact the trade balance in two ways: in the short run, higher imports of low carbon technology would create a negative impact. However, in the medium to long run, when thermal energy production is replaced by RE sources, fossil fuel imports for electricity production will decline and, if the government's net-zero objective is achieved, become eventually obsolete. Box 2 provides an estimate of potential trade balance implications of Cabo Verde's energy transition.

Box 2. Effect of Increased Investment in Renewable Energy Over Cabo Verde's Balance of Payments

Cabo Verde's heavy reliance on fossil fuels exposes its trade balance to external supply shocks and price volatility. Transitioning from a fossil fuel-based economy to one driven by clean energy not only contributes to emission reduction and the attainment of Cabo Verde's NDC objectives, but also yields favorable impacts in its external accounts. The figure below shows that from 2008 to 2020, Cabo Verde has spent around 7.5 percent of its GDP importing fuels. In contrast, investments in low carbon technologies accounted for approximately 1.6 percent of its GDP during the same period. It is noteworthy that there was a substantial increase in imports of low carbon technologies in 2010 and 2011, coinciding with the expansion of wind plants, which presently constitute the largest share of renewables in the country.

Imports of Low Carbon Technologies as a Percent of GDP (2008 – 2020)



Looking ahead, the transition towards increased renewable energy penetration is anticipated to have a temporary negative impact on the trade balance in the short term, as various equipment and technologies will need to be imported. However, this shift is poised to yield a lasting and positive effect in the medium to long term, as Cabo Verde progressively reduces its reliance on fossil fuel imports. According to data from the third National Communication for the UNFCCC, approximately 55 percent of diesel consumption is attributed to the transport sector, with the remainder consumed by households, primarily in the form of electricity. Consequently, achieving a 50 percent penetration of renewable energy would diminish the necessity for oil imports by roughly 1.3 percent of GDP annually.

Assuming that a similar surge in low carbon technology imports as witnessed in 2010 and 2011 accompanies a proportional increase in renewable energy capacity (a conservative assumption given the declining cost of renewable technologies), it would require an average of 3.8 percent of GDP to increase the share of renewable energy to 45 percent[13]. This implies that in approximately three years, the trade balance would attain a breakeven point concerning imports of low-carbon technologies and avoided oil imports, subsequently accruing benefits. This strategic shift would enable the government to accumulate reserves and enhance the stability of its BOP. On the other hand, it also implies that, in the absence of the energy transition, Cabo Verde's BOP would remain vulnerable, and the probability of a BOP crisis would be higher. The IMF encourages the country authorities to undertake a more comprehensive assessment of BOP needs/benefits, including in-depth exercises that allow to estimate what would happen to the BOP under different assumptions related to increased energy demand due to desalination and electric mobility, which would also decrease diesel imports.

Source: IMF Staff using the IMF's database on low carbon technology trade and OEC Economic Complexity Observatory.

[13] Methodological note: 45% of diesel imports are used to produce electricity. Therefore, increasing RE share to 50% would imply a reduction of 1.3% of GDP in fuel imports, calculated as the difference in yearly imports considering that 45% of diesel is currently used to produce electricity and that 18% of electricity is already produced by renewable technologies. On the other hand, based on the extraordinary imports on 2010 and 2011 to deploy renewables (distance from the average to account for imports of other low-carbon technologies), increasing the share of RE to 50% would require imports of about 3.8% of GDP.

23. In Cabo Verde, a significant portion of households relies on biomass as the primary source of energy, a practice with adverse implications for both the long-term climate outlook and public health. As of 2019, 20 percent of households predominantly used biomass for cooking purposes. While biomass can be a renewable source, this depends on whether consumed biomass is being replaced. Unregulated consumption of firewood can exacerbate soil degradation and heighten the risk of landslides, a persistent threat in many regions across Cabo Verde. The combustion of solid biomass in open fires or inefficient stoves releases substantial quantities of short-lived pollutants, including black carbon and methane, that have significant climate consequences at regional and global levels.

Legal and Institutional Framework

24. The Ministry of Industry, Trade, and Energy (MITE), the MAE and multisectoral regulator (ARME) are the main public agencies involved in the regulation of the energy and environmental sectors. The MITE developed an Electricity Master Plan 2018 – 2023 (to be updated every 5 years) and the latest e-mobility plan (2019) (Figure 14). The MAE drafted the last NDC, which will be updated in 2025. The 2023 GHG Inventory is expected to be published later in 2023. To that end, they have gone through a participatory process in which every line ministry has provided information about current emissions and potential actions. Finally, the ARME *(Agência Reguladora Multissectorial da Economia*) sets, among other things, the electricity, fuel, and water tariff structures.

Figure 14. Energy Sector Legal Framework in Cabo Verde

Law	Objective
Law 54/99 Establishing the Basic Law for the Electricity System	Structures the national electricity system regulating electricity production, transport, distribution, concessions, licenses, sale, tariffs and service quality aspects
Law No. 60/2021 Establishing Structure, Organization and Functioning of the Ministry of Industry, Trade and Energy	Establishes the MITE as the government department entitled to design, propose, coordinate, execute and evaluate government public policies in the fields of industrial, commercial and energy infrastructures, quality management, intellectual property protection, industrial property rights, the system and network of trade, renewable energy and desalination.
Law No. 35/2021 Establishing the Regime for Intensive Energy Consumers (RCIE).	The RCIE was established to promote energy efficiency and local energy production in the facilities of final consumers who present significant energy consumption in the final consumption structure, e.g., hotels and desalination plants.
Decree-Law No. 1/2011 Regulating Promotion, Incentives, Access, Licensing and Exploitation of Independent and Self-Production of Electric Energy.	This law specifies technical and safety requirements to obtain a license for the aforementioned activity, provides sanctions for non-compliance and related control procedures and regulates electrification procedures in rural areas based on renewable energies.
Law No. 25/X/2023; Establishes the General Policy Framework for the Forestry Sector	The Forestry Law approves the General Policy Framework for Forestry sector, covering the rules relating to planning, ordering and forest management, the attributions of the State and other public and private entities in the sector, determining the incidences of the forestry policy, protection and conservation of the forest heritage, the valuation of forestry resources and the regime applicable to related offences. The forestry law established penalties for people that illegally consume biomass for income-generating activities

Electricity-Related Regulations – ARME	ARME is the agency in charge of electricity, fuel, and water pricing, and enforcing the price formulas, using the Reglamento Tarifario do Sector Electrico. Additionally, in the context of a regulatory update and with the technical assistance of the World Bank, ARME is updating the tariff structure and produced a set of regulations governing the electricity system, including the commercial relations, quality of service, grid access and dispatch and system operations regulations. ARME maintains a substantial level of "arm's-length" independence from government. A mixture of the legislature and the executive appoints commissioners of ARME for a term of 5-7 years, renewable once. ARME is required to consult the public and stakeholders before taking regulatory decisions. ARME does not need to seek approval from the executive before taking regulatory decisions. The regulator is the final decision maker on tariff determination but plays consultative roles in issuing and amending licenses and resolution of disputes between regulated entities and their customers. Financially, ARME relies on fees levied on regulated utilities, license/certification fees, penalty fees and government budgetary allocation, approved by the executive. The MITE proposes and discusses the authority's budget and government and the regulatory board determine the salary levels of regulatory staff.
Decreto lei 35/2021 Programa Nacional para a Sustentabilidad de Energética (PNSE)	The National Program for Energy Sustainability (PNSE), established by the Government of Cabo Verde in the PEDS I 2017/2021, aims at interventions of promotion of Energy Efficiency (EE), considered as a critical factor for economic competitiveness and diversification of industrial activity, as well as for the creation of skills for providing services at the level regional and international.
Resoluçao 39/2019 Plano Director do Sector Eléctrico 2018-2040	The Electricity Sector Master Plan 2018-2040 is as a structural document for the development of the Electricity System, considering the main areas of development of the sector: territorial consumption forecasting, new investments and reinforcements in transport and distribution infrastructure of electricity, producer structure (location of plants, size, energy sources and technologies) and network management, institutional and organizational structure
2018 Carta Política para Mobilidade Elétrica e Primeiros Carros Elétricos em Cabo Verde (CPME)	The Electric Mobility Policy Charter guides the Government's actions, essentially, through the MITE, which oversees the energy sector, seeking a coherent approach with energy policy and the policy of environment, mobility and finance vectors public.

Source: IMF mission

B. Energy Supply – Energy Transition

Existing Policies and Ongoing Reforms

25. According to Cabo Verde's NDC, the government plans a sharp increase in RE in electricity generation aiming to move from below 20 percent in 2021 to 30 percent in 2025, 54 percent in 2030 and, with adequate support, to 100 percent in 2040. To this end, it is planned to more than double the installed renewable energy capacity over the coming years, from 175 MW to 410 MW by 2030. Subsequently, Cabo Verde envisages a further substantial increase of 380 MW in installed capacity by 2040, which is expected to result in a complete transition to 100 percent renewable energy in the electricity mix, contingent upon international support. Cabo Verde's international commitment is closely aligned with its Electricity Master Plan 2018 – 2040, which considers 252 MW of renewable energy installed capacity by 2030 (Figure 15a). However, achieving the first milestone of 30 percent renewables in electricity generation by 2025 seems unlikely, as it would require an additional 12 percent of generation installed by 2024, a 66 percent increase compared to 2022.

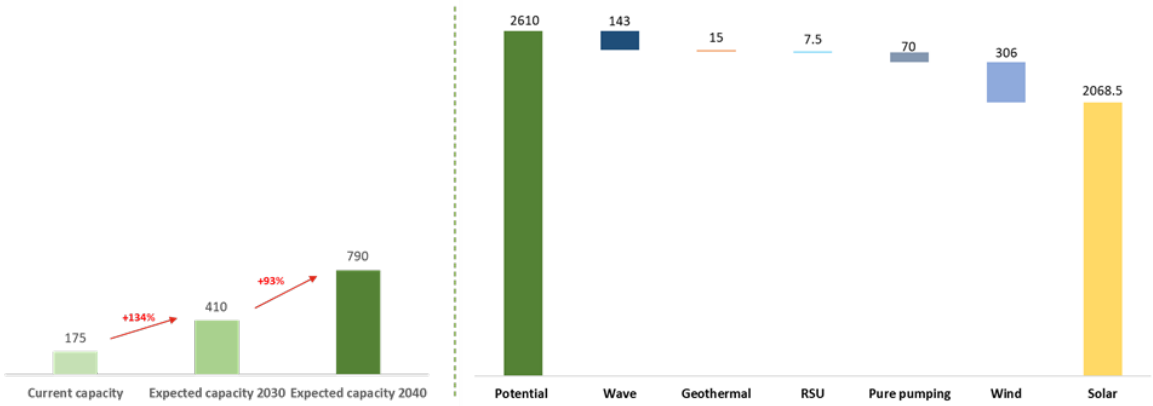
26. The country has vast untapped renewable energy potential, particularly for the deployment of solar generation plants, which can also become an important source of jobs. The MITE identified 2610 MW of potential capacity in the Electricity Master Plan 2018 – 2023. This potential is concentrated

around solar energy, representing 80 percent of the potential, 12 percent derived from wind sources, and 5 percent originated from marine energy resources. The presence of high renewable energy potential positions Cabo Verde in a favorable situation to meet its sustainability and climate goals (Figure 15b). Additionally, research suggests that renewable energy is more labor intensive than fossil fuel-based electricity generation. Specifically, green investments generally create more jobs per US$1 million than unsustainable investments, with some studies estimating that for every US$1 million shift, the economy might experience a net increase of 5 jobs[14]. Thus, increasing the deployment of renewable energy and ensuring that the population has the required capacity and skill to perform the job can also become part of an integral strategy to secure a just transition. In this regard, the government of Cabo Verde has partnered with several universities to create local capacity.

Figure 15. Current and Potential Renewable Energy Capacity

a. Renewable Energy Current Capacity and Expected Capacity According to NDC (MW)

b. Potential Renewable Energy Capacity by Source (MW)



Source: IMF staff using EMP 2018-2040 and NDC.

27. The government, through different Ministries, has instituted a range of reforms aimed at promoting investment in renewable energy, including import duty exemptions and partnerships with private banks to increase access to green financing. Cabo Verde's 2023 State Budget Law introduces new incentives, such as an exemption for imports of solar panels, batteries, wind turbines and equipment's to install renewable energy, both for large and small scales. Additionally, to incentivize the adoption of solar panels, the Ministry of Finance and Business Development (MOF) partnered with local banks to offer reduced interest rates on loans for households and micro and small companies seeking to install solar panels. This special credit line, designed to support the energy transition, extends loans at a rate of 7 percent, featuring a spread of 0.5 percent vis-a-vis conventional credit lines. The MOF subsidizes half of it, so that households end up paying a 3.5 percent interest rate. Additionally, the government offers a feed-in tariff to promote the development of small-scale renewable generation.

[14] Heidi Garrett-Peltier, Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input-output model, Economic Modelling, Volume 61, 2017, Pages 439-447, ISSN 0264-9993, https://doi.org/10.1016/j.econmod.2016.11.012. (https://www.sciencedirect.com/science/article/pii/S026499931630709X)

28. The government of Cabo Verde has embarked on a comprehensive reform process that encompasses the unbundling of ELECTRA and a substantial revision of primary regulations within the power sector, including the electricity tariff schedule. The overarching objective of the reform is to address ELECTRA's precarious financial situation, enhance the operational and financial sustainability of the electricity sector, and foster an environment conducive to private sector investment for the modernization and expansion of the electrical infrastructure. ELECTRA's reform entails its separation into three distinct entities: a generation company, a transmission and system operation entity, and a distribution company. The participation of the private sector is anticipated to play a significant role in both the generation and distribution segments. Additionally, ARME is currently updating the electricity tariff system and has recently revised key regulatory aspects such as dispatch and system operation, quality of service, grid access, and commercial relations regulations. The Cabo Verdean government expects to complete the legal and operational unbundling by March 2024.

Challenges and Policy Gaps

29. Addressing ELECTRA's financial situation and improving its governance through tariff adjustments and unbundling is critical to accelerate the energy transition and mitigation efforts in Cabo Verde. In the medium term, infrastructure may become a binding constraint to add variable renewable energy if there is no additional grid investment, including in storage. Completing ELECTRA's unbundling process is critical to improve its transparency and reliability as a private sector partner. Addressing its unsustainable financial situation will require adopting a tariff system that allows it to recover its costs, opening space for investment in renewables, while working on loss reduction and improving administration efficiency. In the near future, ELECTRA will need to invest in upgrading the electric grid before it reaches its current capacity to absorb additional variable RE, in order to benefit from the transition to a clean and less expensive generation matrix. Otherwise, it will need to maintain significant thermal capacity to cover peak load demand when RE is not available.

30. ELECTRA has been accumulating losses and in 2022, the company's liabilities exceeded assets by 7,146 million escudos, equivalent to Euro 71 million of negative equity. The company's financial performance in 2022 reflected a net loss of 781 million escudos (Euro 7.8 million), following a higher loss of 1,338 million escudos in 2021 (Euro 13 million). The main drivers of high costs (i) and losses (ii and iii) are (i) the absence of economies of scale due to the country's geographic situation (the cost of which, in principle, should be covered by tariffs), (ii) end-user subsidies, related to the reliance on imported fuel for electricity generation and vulnerability to price volatility, which is not full passed through to electricity prices (see Box 3. on electricity pricing), and the subsidy provided for final consumers, which is not fully covered through government transfers; and (iii) producer subsidies: high levels of transmission and distribution losses and high non-technical losses, especially in the island of Santiago.

Box 3. Electricity Tariff Structure in Cabo Verde

Cabo Verde presently has an Increasing Block Tariff (IBT) structure in place, with three monthly consumption blocks: up to 60 kWh, between 60kWh and 90kWh, and above 90kWh. Under IBTs, the different block prices apply to the different segments of the end-user consumption, so that all users benefit from the lower block price.

The electricity price in Cabo Verde is ordinarily revised every year, although it can also be extraordinarily revisited. The electricity price formula considers a Fuel Cost Adjustment Factor per kWh, with two main elements: (1) the primary component are the fluctuations in international fuel prices, and (2) pending increases, transferred forward in previous price revisions. . The government may decide not to apply the full increase in prices if it deems that it would put unwanted pressure over households' budgets. In that case, the price increase is carried forward, with the expectation of applying it in future price revisions. Additionally, the tariff adjustment mechanism considers yearly-adjusted efficiency factors, smoothening the impact of losses on final prices and encouraging supplier efficiency. Electricity is subject to an 8 percent VAT.

Additionally, the tariff levels do not consider ELECTRA's cost recovery. That is, prices in the IBT are not calculated with the objective of achieving cost recovery for the SOE. ELECTRA's unbundling is expected to play a major role in the future methodology to determine electricity prices, currently under revision with the support of the World Bank. The new electricity tariff regulations are expected to update the current structure, which has been in place since 2008.

The government implemented a social tariff, received by 1,700 households, all pertaining to tiers 1 and 2 of the Unique Social Registry. Households eligible for the social tariff receive a subsidy equal to the value of their total consumption. The MOF covers the social tariffs through direct transfers to the electricity SOE.

Other than the IBT, in which households can pay a tariff below costs, and the social tariff, there is no other subsidy to electricity consumption. During the extraordinary revision of June 2022, there was an exemption to the formula, since the final price increase resulting from the application of the formula was additionally subsidized by 60 percent, as an extraordinary measure to avoid the passthrough of higher costs to households.

Households are also compensated for any quality-of-service losses, mainly in the event of brownouts and blackouts. Those losses are reflected in the next billing year after the occurrence of a loss event.

In the current price structure, ELECTRA charges one price and the electricity provider for Boavista, AEB, charges another. However, the current revision of the price structure in the sector is evaluating the possibility of establishing the same price in all the country.

31. ELECTRA faces high technical and non-technical losses, which call for attention to enhance the overall efficiency of the system and improve the company's financial standing. Transmission and distribution losses relate to energy dissipated before it gets to end-users, while non-technical losses encompass a range of issues, including electricity theft, non-payment by consumers, and issues related to billing and revenue collection. Losses are not evenly distributed across all islands (Table 3). Santiago bears a disproportionate share of the losses, amounting to a substantial 35 percent of the island's electricity production.

Table 3. Electricity Losses as a Percentage of Total Production per Island, 2022 (kWh)

Island	Production	Consumed during production	Sales	2022 losses	%
Santo Antao	18,467,264	313,561	15,472,814	2,680,889	14.5%
Sao Vicente	85,837,491	10,660,874	63,602,142	11,574,475	13.5%
Sao Nicolau	7,486,179	91,162	6,473,748	921,269	12.3%
Sal	73,698,009	7,755,438	59,781,696	6,160,875	8.4%
Maio	4,053,301	12,504	3,459,605	581,192	14.3%
Santiago	260,174,917	26,768,110	143,539,125	89,867,682	34.5%
Fogo	16,104,638	270,485	13,586,395	2,247,758	14.0%

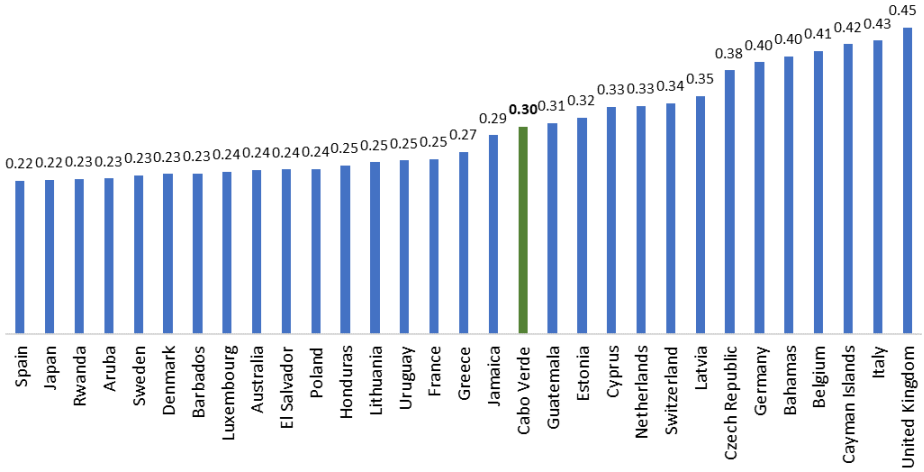
Brava	3,114,844	13,739	2,588,091	513,014	16.5%
Total	468,936,643	45,885,873	308,503,616	114,547,154	24.4%

Source: ELECTRA's Relatorio e Contas 2022.

32. Additionally, the unbundling process needs to be accelerated to meet the objective of achieving full operational and legal unbundling by March 2024. The current vertical integration poses challenges to assess which areas require focused attention and investment. Although progress has been made in the operational unbundling, the legal aspects of this process, which encompass the creation of new companies and the redistribution of the workforce among these entities, have not received the same level of attention.[15] Making progress on the legal framework is critical to unbundle ELECTRA, increase its transparency, and its reliability as a partner for the private sector.

33. The cost structure in the power sector translates into high electricity prices, representing both an important constraint for investment in energy intensive industries, and economic growth and a fiscal burden for the government as a result of the current consumer subsidy to vulnerable households. During the second quarter of 2023, Cabo Verde's retail electricity price was comparable to Jamaica and Guatemala, 10 percent more expensive than France and about 20 percent more expensive than Luxembourg (Figure 16). The government, in an effort to protect households from high electricity prices, created a social tariff for electricity, which covers 100 percent of consumption for households registered in the first and second tiers of the Unique Social Registry (USR). As an exceptional measure, the government decided to further subsidize electricity tariffs by 60 percent to all consumers in order to protect them from fuel price increases related to the war in Ukraine. The government expects to cancel the additional subsidy in the next tariff revision. According to government estimates, transfers to ELECTRA accounted for 0.8 percent of GDP in 2022. . ELECTRA is usually fully compensated by the MOF for the social tariff but was not compensated for the exceptional 60 percent subsidy applied to households during the latest extraordinary tariff revision.

Figure 16. Electricity Prices for Selected Countries, Q2 2023 (USD per kwh)



Source: Global Petrol Prices (GPP)

[15] During discussions with the electricity sector, it has been suggested that the operational units' accounting systems have not been separated and that the companies' assets have not been allocated between the three companies.

34. The grid's capacity to integrate a greater share of variable renewable energy and the lack of storage capacity will become a binding constraint for Cabo Verde's mitigation efforts and energy transition in the absence of additional investment. Given the current configuration and robustness of the transmission and distribution networks, the government estimates that grid and battery storage strategic investment add up to 106 million euros (4.8 percent of GDP). This will be particularly relevant given the required speed of renewable penetration if Cabo Verde is to comply with its NDCs while ensuring sufficient firm capacity and system stability and addressing flexibility needs. The MITE estimates that the grid is relatively ready to incorporate up to 30 percent of renewable energy capacity, but increasing the share henceforward will require major investments.

35. Increasing investment in storage capacity is key to unlock lower average production costs and phasing out the most expensive thermal power plants, in addition to decreasing emissions. An integrated approach that combines both private sector investment in renewable energy generation and concurrent public investment in grid enhancement and storage capacity is essential to reap the full benefits of the energy transition. Without a synchronized strategy that bolsters grid infrastructure, ELECTRA will encounter challenges in effectively managing the variability associated with renewable energy sources. Specifically, the need to maintain high fixed costs to match renewable energy fluctuations can inhibit ELECTRA from phasing out costlier and less efficient power plants, which, in turn, would hinder the reduction in average production costs. In the medium term, by meeting energy demand in the nights with stored solar energy, the less likely the need to turn to conventional production to compensate for renewable variability.

36. Finally, the inter-island grid connection in Cabo Verde seems unlikely in the short and medium term due to the country's geographical position. The absence of an interconnected grid across the islands results in reduced overall efficiency in electricity generation and increased operational costs. Given the considerable distances and ocean depths between the islands, the prospect of establishing such an interconnection appears challenging both from a technical and investment perspective. Nonetheless, the MITE is currently drafting the terms of reference of a pre-feasibility study to evaluate the option of interconnecting the islands with higher electricity demand.

C. Climate Policy Assessment Tool (CPAT) Analysis

37. The MOF has expressed interest in implementing a carbon tax, which is evaluated in this section. To this end, IMF staff evaluated the effect of implementing a carbon tax on emissions, fiscal revenue, GDP growth, energy prices, and its associated distributional impact across income groups. The evaluated reform will be a modest carbon tax of USD 10 per ton of CO2e in 2024, increasing linearly to USD 35 per ton of CO2e in 2035.

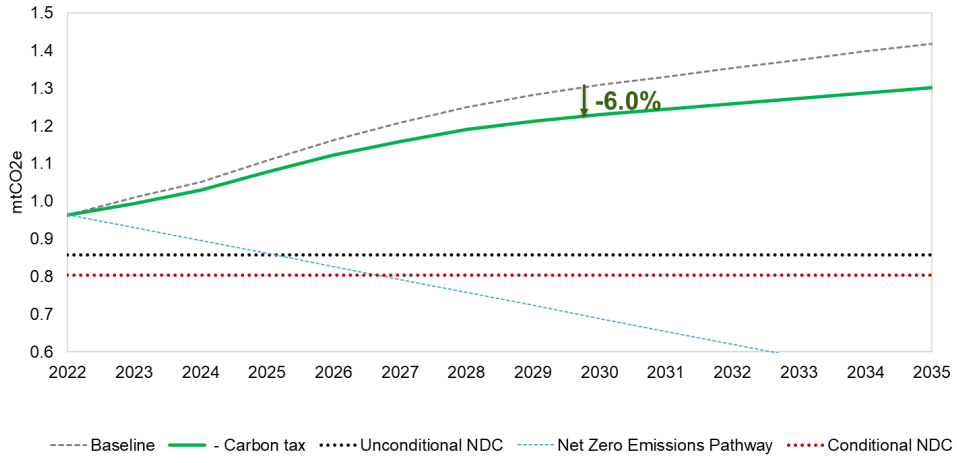
38. The evaluation is done using the CPAT, a spreadsheet-based model developed jointly by the IMF and the World Bank. CPAT provides estimates of fuel use and emissions by main emitting sectors—power, industry, transport, buildings, agriculture, and waste— as well as the emissions impact of a diverse range of carbon pricing and non-pricing mitigation policies. Covering over 200 countries, CPAT uses assumptions on energy prices, economic growth, and other socio-economic variables at the country level. Fuel and electricity price responsiveness is parameterized to be broadly consistent with empirical

evidence and results from energy models (fuel and electricity price elasticities over the longer term are generally between -0.5 and -0.8).

Emissions Analysis

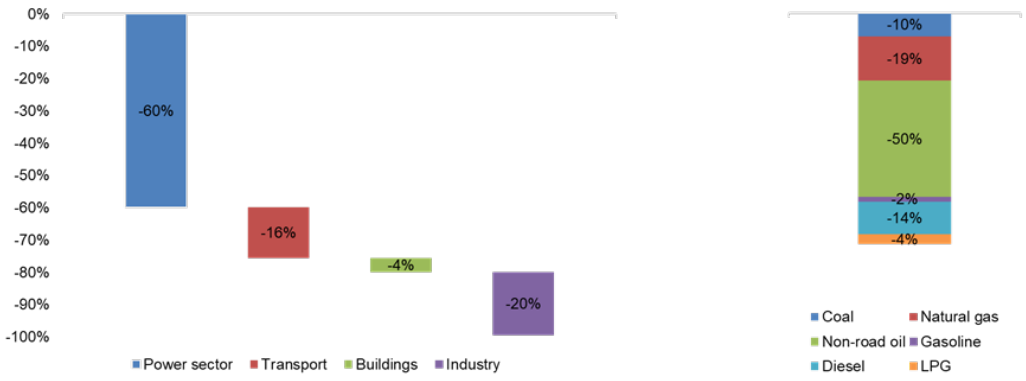
39. The implementation of a modest carbon tax in Cabo Verde represents a positive step towards mitigating emissions growth, although it is not sufficient to meet the NDC targets. A carbon tax of USD 10 per CO2 ton, gradually increasing to USD 35 per CO2 ton in 2035 reduces GHG emissions 6.02 percent in 2030, compared to BAU (Figure 17). Cumulatively over the 2024-2035 period, the carbon tax would reduce 0.87 million tons of CO2e. Most of the emission reduction would stem from the power sector, with over 60 percent of emission reduction, followed by industry and transport sectors, contributing 20 percent and 16 percent of the total reduction, respectively (Figure 18). Additional policy measures would be required to bridge the remaining gap, encompassing further renewable energy deployment and energy efficiency enhancements.

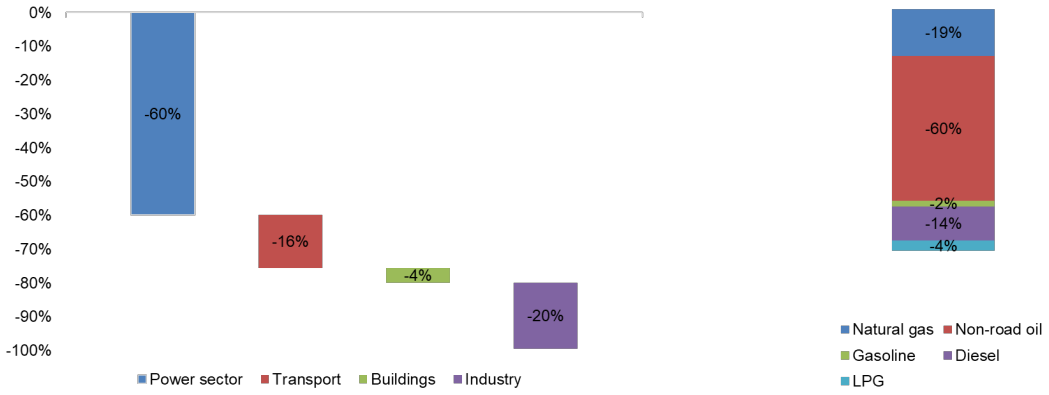
Figure 17. Emission Reduction After Implementation of a Carbon Tax



Source: IMF Staff using CPAT.

Figure 18. Reduction in Emissions per Sector and Fuel, Carbon Tax Scenario



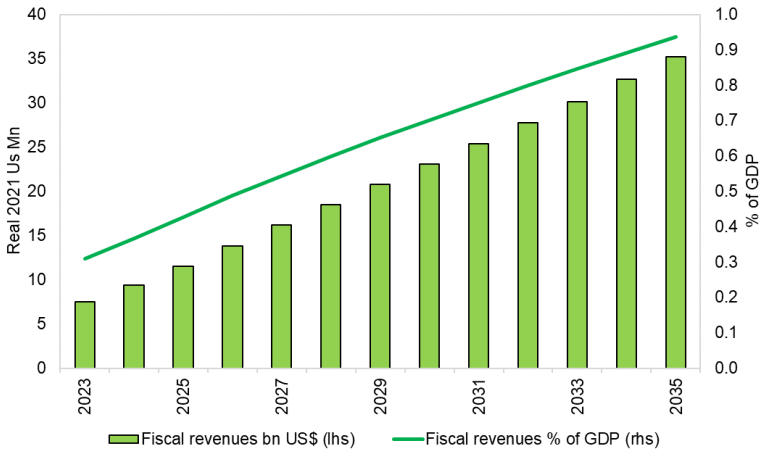


Source: IMF Staff using CPAT.

Fiscal and Macro Implications

40. The introduction of a carbon tax in Cabo Verde holds significant revenue-generating potential (Figure 19)**.** By 2035, the carbon tax could raise as much as 1 percent of GDP in additional revenue compared to the baseline scenario. Cumulatively, from 2023 to 2035, the carbon tax could raise up to USD 280 million. During the first year of implementation, the carbon tax would provide 0.31 percent of GDP in additional income to the government, accounting for a 1.7 percent increase in government revenues.

Figure 19. Additional Revenue on Top of Baseline, Carbon Tax Scenario

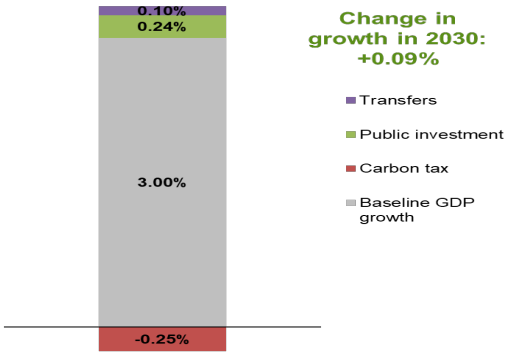


Source: IMF Staff using CPAT.

41. The carbon tax can also have a modest negative impact on economic growth, which can be offset by growth-enhancing revenue recycling options (Figure 20). It is important to note, however, that spending decisions should be made according to budget prioritization and independent of revenue measures. In any case, under a fiscal neutrality principle, compensation options should be carefully evaluated. The potential negative impact on GDP growth in 2030, in the absence of revenue recycling policies is 0.25 percentage points in the carbon tax scenario. In the current modelling exercise, 50 percent of the additional fiscal revenue was used in targeted cash transfers to the first 6 deciles,

assuming a 25 percent leakage rate across the 4 deciles with higher income and a 75 percent coverage rate. The other 50 percent was allocated to public investment, which generally has higher fiscal multipliers than other revenue uses. . Moreover, if public investment is geared toward increased renewable deployment, the emission reduction would be higher. Finally, carbon taxation can have an immediate benefit in the Balance of Payments by means of reduced imports as a result of less fossil fuel demand.

Figure 20. Policy Reform Impact on Economic Growth After Revenue Recycling



Source: IMF Staff using CPAT.

Price Analysis

42. Carbon pricing is expected to exert upward pressure on energy prices in Cabo Verde, with relatively equal impact on its main fuels. (Table 4). Diesel would experience a 8 percent increase in 2030 relative to the baseline, increasing transport costs in Cabo Verde. The pass-through effect o diesel prices is anticipated to lead to a subsequent rise of 7 percent in electricity prices compared to the baseline. It is important to note that the degree of passthrough between increasing fuel prices and electricity prices is influenced by the share of renewable energies in electricity production. A higher share of renewable energies in electricity production can mitigate the extent of electricity price increases. Regarding efficient pricing[16] (Figure 21), carbon taxation would almost close the gap between the expected and efficient price for residential electricity consumption, and would contribute to reducing the gap for diesel, LPG, and natural gas. Gasoline is taxed beyond the efficient level

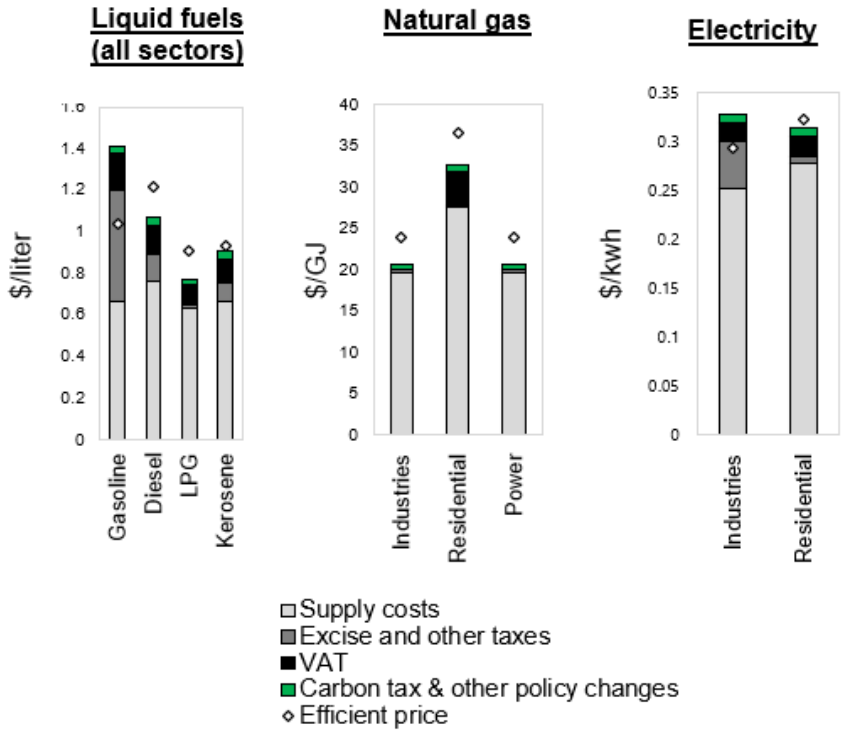
Table 4. Energy Price Changes for USD 25/tCO2 in 2030 (weighted by consumption)

Fuel	Baseline	Baseline + / - Carbon tax	% change
Gasoline (*US$ per liter*)	1.28	1.35	5%
Diesel *(US$ per liter)*	0.94	1.02	8%
Natural gas *(US$ per gigajoule (GJ))*	16.30	17.67	8%
Electricity *(US$ per kwh)*	0.27	0.29	7%

Source: IMF Staff using CPAT.

[16] CPAT estimates efficient prices by internalizing externalities related to local air pollution, congestion, and road maintenance.

Figure 21. Efficient Pricing for Main Fuels and Electricity in Cabo Verde in 2024

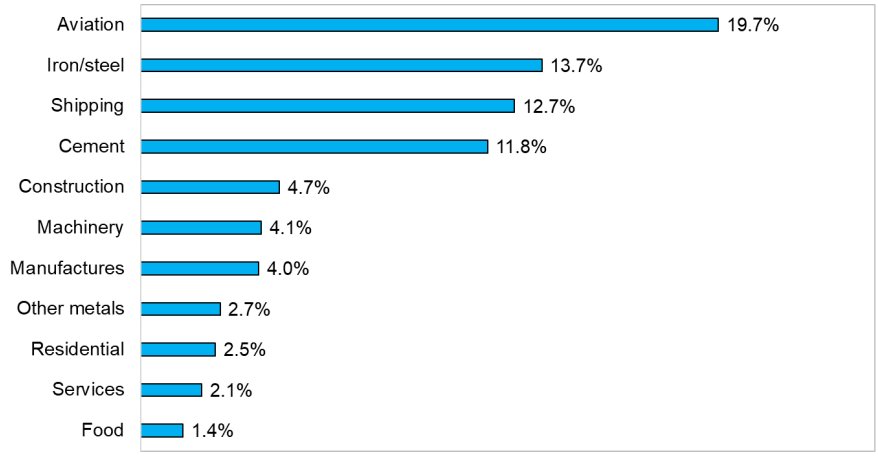


Source: IMF Staff using CPAT

43. The carbon tax would also lead to increases in output prices, especially in aviation and shipping. The air transport sector would be the most heavily impacted by the carbon tax implementation, with prices bound to increase 19.7 percent in 2030, followed by water transport (shipping) with a 12.7 percent price increase. Despite the service and food sectors will only be marginally impacted, with 2.1 percent and 1.4 percent increases respectively, their effects might be relevant across the economy given Cabo Verde's service-oriented economy, as well as the little proportion of food produced domestically. Finally, the most impacted industrial sectors[17] would be iron/steel and cement, with 13.7 percent and 11.8 percent increases, although they represent only a small share of total output (Figure 22).

[17] Production cost increases have three components. First, industrial firms will incur a direct tax payment for emissions they continue to emit directly. Second, firms will incur abatement costs to the extent they cut emissions, for example, by switching to cleaner (but costlier) technologies and fuels. Third, they incur an indirect payment for carbon charges on emissions embodied in their inputs.

Figure 22. Percent Change in Output Prices in 2030 (output price increase, in percentage)



Source: IMF Staff using CPAT.

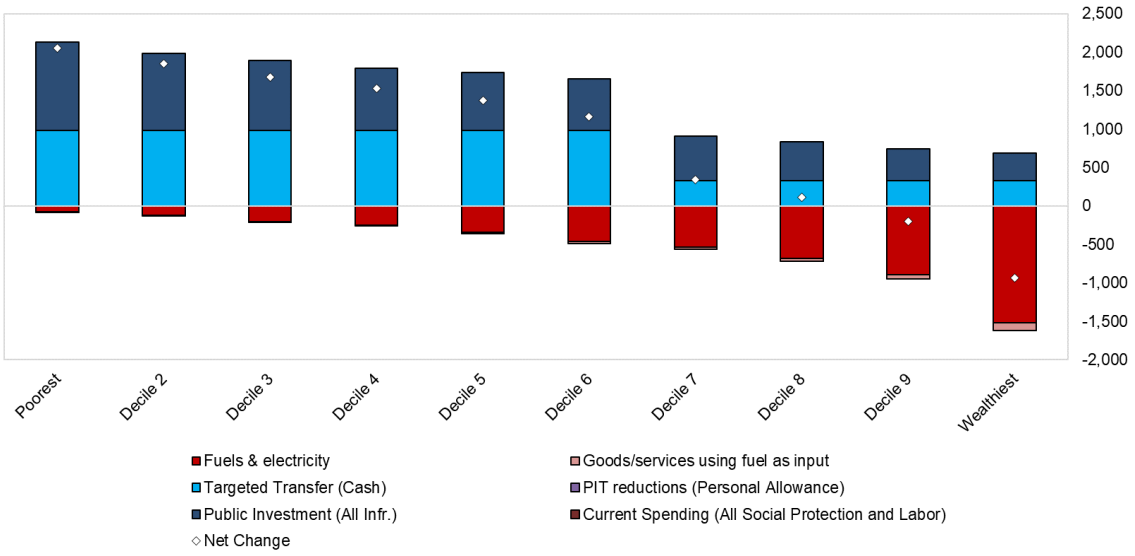
Distributional Impact and Co-Benefits

44. Evaluating the potential impact of carbon pricing on households and addressing any resulting burdens is a crucial aspect of policy implementation, particularly when considering opposition from civil society due to higher energy prices. The analysis is based on a two-step approach to assess the distributional impacts of the reforms. Firstly, using input-output tables we calculate the effect of carbon pricing on different categories of consumer goods; and secondly, we map price increases to data on budget shares for different goods by household income group using household expenditure surveys.

45. The distributional impact assessment shows that carbon pricing would have a moderate negative impact on households, which could be mitigated by revenue recycling. If the additional fiscal revenue is used to increase cash transfers and public investment, only the 20 percent wealthiest households in Cabo Verde would have negative absolute consumption losses (Figure 23 and Figure 24). In the current modelling exercise, 50 percent of the additional fiscal revenue was used in targeted cash transfers to the first 6 deciles, assuming a 25 percent leakage rate across the 4 deciles with higher income. The rest 50 percent was allocated to public investment taking into account PIM efficiency. The most vulnerable households in Cabo Verde would be more than compensated for their losses, with a 6.2 percent increase in their relative income, an increase of about 2 thousand escudos. On the other side of the income distribution, high income households would experience a net consumption loss of about 1,000 escudos, equivalent to 0.1 percent of their relative consumption[18].

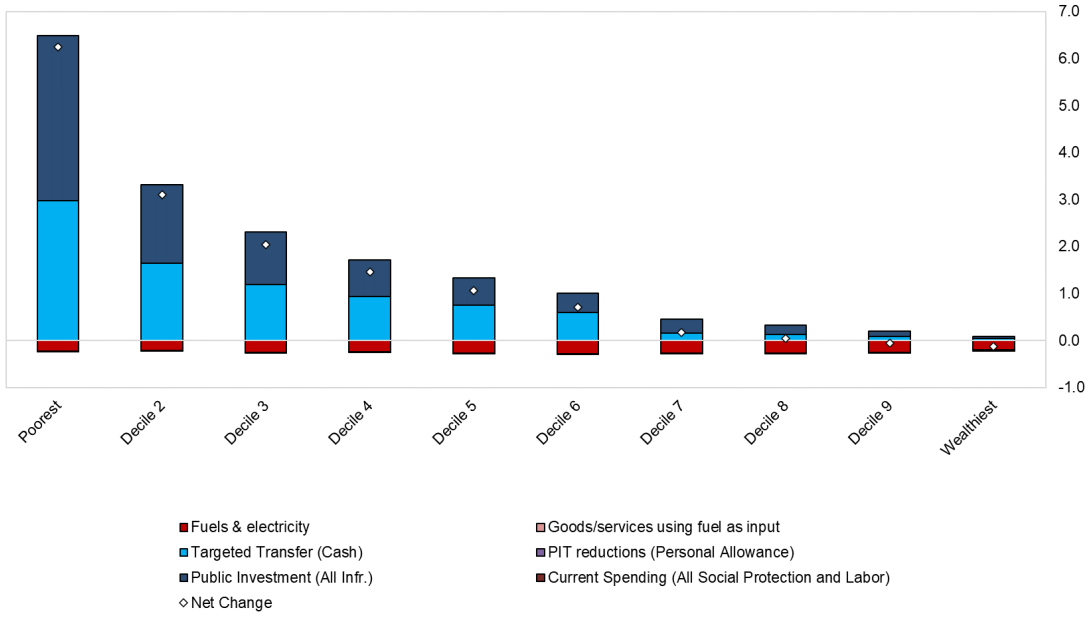
[18] The distributional analysis in this report uses data from the 2001 Household Budget Survey. Therefore, it should only be considered illustrative. The IMF encourages the government of Cabo Verde to perform an updated distributional assessment using the most recent data.

Figure 23. Absolute Mean per Capita Consumption Effect in 2025 (real 2021 escudos)



Source: IMF Staff using CPAT.

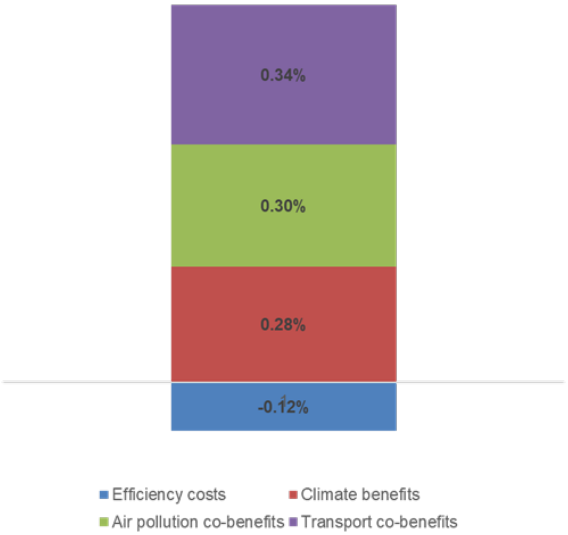
Figure 24. Relative Mean per Capita Consumption Effect in 2025 (percentage)



Source: IMF Staff using CPAT.

46. The measured climate, air pollution, and transport co-benefits more than offset the efficiency costs of implementing a carbon tax (Figure 25). The efficiency costs of implementing a carbon tax add up to 0.12 percent of GDP. However, those costs are more than compensated by the local development co-benefits, namely in reduced air pollution and transport. Table 5 summarizes the main effects of implementing a carbon tax, which might be helpful to weigh different trade-offs in the decision-making process.

Figure 25. Economic Costs, Domestic Co-Benefits, and Climate Benefits in 2030 (percent of GDP)



Source: IMF Staff using CPAT.

Table 5. Summary Table of Carbon Tax Impacts

Variable	Impact
Energy-related CO2 emissions reduction in 2030, % to a BAU	8.20%
Cumulative CO2 emissions reductions in 2024-2030, MtCO2	0.87
Additional fiscal revenues raised in 2030, % of GDP	0.70%
Cumulative additional fiscal revenues raised in 2024-2035, million USD	280
Impact on GDP growth in 2030, percentage points deviation from the BAU growth	-0.25%
Residential electricity price increase in 2030, percent from the BAU price	5%
Relative mean consumption effect on the poorest before revenue recycling, % of BAU consumption	-0.2
Relative mean consumption effect on the poorest after revenue recycling, % of BAU consumption	6.2
Pure abatement costs, % of GDP	-0.12%
Domestic co-benefits (transport, air pollution), % of GDP	0.64%
Assumptions	
Price trajectory: carbon tax of USD 10 per CO2 ton, gradually increasing to USD 35 per CO2 ton in 2035	
Pass-through: 80% of electricity produced using PPAs, gradually phased-out until 2035.	
Revenue recycling: 50 percent of revenues used for public investment and 50 percent for targeted transfers, targeting the first 6 income deciles, with 75 percent coverage rate and 25 percent leakage rate.	

Revenue Recycling Options

47. The prospect of carbon taxes in Cabo Verde can face resistance from voters and interest groups due to concerns about its impacts on energy prices and the cost of living, especially

considering the already high prices of energy in the country. These concerns may lead to public opposition, particularly if the reform is perceived as an additional burden on low-income families. Overcoming this political debate will require building a broad and diverse coalition in favor of the reform. These include awareness campaigns to communicate the benefits of carbon pricing, designing the tax progressively to lessen the burden on lower-income individuals, transparently communicating how revenues will be used, engaging a wide range of stakeholders in its design, and emphasizing the global commitment to combat climate change.

48. The government should develop a well-planned strategy to communicate how revenue from higher carbon taxes will be spent. Options for revenue use should be assessed against impacts on income distribution and economic efficiency, as well as administrative burden (Table 6). Broad categories of possible expenditure choices include cash transfers, environmental or general investment, deficit reduction or lower taxes. For example, universal transfer payments (i.e., equal payment to all households regardless of income) might help with political acceptability but would forgo potentially sizable efficiency benefits from productive revenue use. Environmental investments (low-carbon infrastructure, energy networks, R&D) may also be favored by voters as part of a package. However, these investments would need to be balanced against competing investment priorities and scrutinized to ensure high quality, as with other important investments (e.g., healthcare, water, and sanitation, etc.). The government should develop a communication strategy to communicate how revenue from a newly imposed carbon tax would be spent (Annex II).

Table 6. Options for Recycling Higher Carbon Tax Revenue

Instrument	Metric			
	Impacts on income distribution	Impact on economic efficiency	Administrative burden	Impact on political feasibility of carbon pricing
General Revenue Uses				
Climate-related investment in mitigation or adaptation	May disproportionately benefit low-income households (for example, if their vulnerability to natural disasters is reduced)	May be less efficient than broader uses of revenues	Modest	High, especially if investment benefits low-income households
General investment	May disproportionately benefit low-income households (for example, if basic education, healthcare, and infrastructure)	Potentially significant	Modest	High if investment takes place in social sectors
Universal transfers	Highly progressive (disproportionately benefits the poor relative to higher income)	Forgoes efficiency benefits	Modest	High, but important inclusion error
Compensate reduction in payroll tax	Benefits are largely proportional across households in the formal sector	Improves incentives for formal work effort	Minimal	Low
Compensate reduction in personal income tax	Typically, benefits are skewed to higher-income groups	Improves incentives for formal work effort, and saving reduces tax sheltering	Minimal	Low
Compensate reduction in consumption tax	Largely proportional to households' consumption	May reduce distortions in relative prices if there are exemptions	Minimal	Low, depends on the overall progressivity/regressivity of the tax and exemptions.

Compensate reduction in corporate income tax	Benefits are skewed to higher-income groups	Improves incentives for investment	Minimal	Low
Deficit reduction	Benefits accrue to future generations	Significant (lower future tax burdens and macro-financial risk)	Minimal	Low
Targeted assistance				
Means-tested cash, in-kind transfers	Effective in helping low-income groups if social safety nets are comprehensive	Efficiency impacts unclear but likely modest	High	High
Assistance for household energy bills	Provides partial relief for all households (for example, does not help with indirect pricing burden)	Modest reduction in environmental effectiveness	Low	Medium, or high if only low-income household receive the benefit

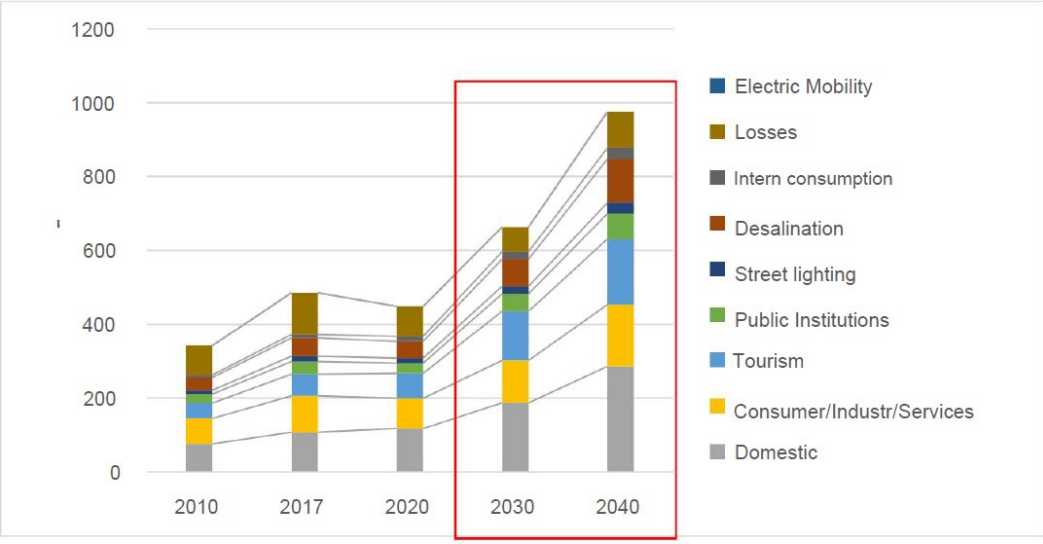
Source: IMF Staff.

D. Energy Demand – Energy Efficiency

Existing Policies and Ongoing Reforms

49. Energy demand from transport, water desalination, irrigation, households and buildings, is set to nearly double over the next seventeen years (Figure 26). This is mainly driven by population and economic growth, achieving full grid connection, and heightened energy requirements for water desalination. While tourism, industry and services are also poised for growth, the government has not yet incorporated additional electricity demand from an increase in e-mobility in current plans. It is crucial to acknowledge the intricate interplay between energy, water and the successful implementation of strategies tied to the energy transition. Simultaneously, this dynamic will exert additional pressure from the demand side, particularly with the rise of e-mobility, which calls for increased coordination across various government agencies.

Figure 26. Main Drivers of Energy Demand, 2030 – 2040 (Gwh)



Source: Relatorio preliminar do Inventario Nacional de GEE, 2023.

50. The MAE led the creation of an NDC implementation strategy through a participatory approach, which has a range of energy efficiency projects. The government is currently working on projects that will increase energy efficiency and, thus, reduce energy demand across different sectors (Table 7). For example, the government is supporting the uptake of agricultural practices that would increase hydric efficiency and thus, reduce the amount of water needed to irrigate drylands. In addition, its encouraging the deployment of renewable energies to feed desalination plants and decrease the energy demand for water production, as well as encouraging the use of energy-efficient appliances and encouraging less energy consumption in households, public buildings and in the tourism sector.less energy consumption in households, public buildings and in the tourism sector.

Table 7. Strategies and Policies to Decrease Energy Demand Across Different Sectors

Strategy	Target	Measures taken
Reduce energy intensity and increase energy efficiency	Decrease household energy consumption by 7% in 2030 compared to BAU. Government program will focus on lightning and efficient air conditioning.	▪ In 2019, the National System of Labeling and Requirements for Electrical Equipment (SNEREE) was created, which established the measures and information obligations to be provided to the end user through labeling, and the minimum requirements in terms of energy efficiency applicable to import and commercialization.
Increase the energy efficiency and public lighting, and reduce energy consumption of public buildings	50% of public lighting with LED lamps,, 100% of public buildings with LED lamps,	▪ The government of Cabo Verde complemented the creation of SNEREE with 16.5 million USD in order to implement the Renewable Energy and Improved Efficiency in Public Buildings project. ▪ The government of Cabo Verde is currently finishing a comprehensive mapping of all public buildings in the country.
Increase energy efficiency of touristic stays	Establish 10,000 key cards[19] in tourist accommodation by 2030	▪ The Inter-ministerial Committee (MITE, Ministry of Infrastructure, Spatial Planning and Housing, and MAE) approved the Energy Efficiency in Buildings Code , which establishes the minimum requirements for the design and construction of energy efficient buildings.
Implement water desalination measures with Renewable Energy	At least 50 percent of water used in Furna Brava will be desalinated photovoltaic solar energy. Desalinate 50 percent of water using wind and photovoltaic energy by 2030.	▪ The government approved the Strategic Sector Plan for Renewable Energy (PESER) and which establishes the Renewable Energy Development Zones (ZDER), including water desalination plants.

Source: IMF Staff using the Relatorio preliminar do Inventario Nacional de GEE, 2023.

51. Tourism is a critical activity in Cabo Verde, both for its contribution to the economy and job creation, and also for the associated energy demand, which is expected to account for about

[19] Key-cards are used to switch-off electricity consumption in bedrooms when the guest is not inside the bedroom.

18 percent of total energy demand by 2040. Tourism represented 16.9 percent of Cabo Verde's GDP in 2020. Despite a massive decrease in tourism during the pandemic, the Ministry of Tourism and Transport (MTT) estimates that tourist stays are back on track to pre-pandemic trends. Assuming a 10 percent yearly increase in tourist flows, Cabo Verde could receive 1.64 million tourists in 2025 and 3.12 million in in 2030, with an expected increase in 60,000 rooms to accommodate them by 2030. This presents both a challenge and an opportunity. On the one hand, Cabo Verde will need to increase its climate-risk mapping in order to increase certainty and attract private investment to further develop its tourism sector. Additionally, it will need to properly regulate its growth and circularity, in order to expand it in a sustainable way. On the other hand, addional economic activity will also represent additional fiscal revenues to finance the expansion of water and power networks to meet the additional tourism demand.

52. The water sector also represents an important component of energy demand in Cabo Verde. Water from desalination is expected to add 90 Gwh of electricity demand by 2040, a 200 percent increase from the electricity demand stemming from desalination in 2020, . The current planning documents don't make a distinction between desalination for human consumption and desalination for irrigation, which would be a key input for any update on the Electricity Master Plan. In order to address the energy intensity of water desalination, the government is currenly implementing several desalination projects using renewable energy, including the Porto Novo desalination plant in Santo Antao and the desalination plant in Furna Brava. Additionally, the government expects to increase hydric efficiency in agriculture by modernizing 3,473 ha of agriculture irrigated by drip irrigation in the country. However, if technical losses are not addressed, then for every m^3 of water demanded, public utilities will need to produce about 2 m^3, thereby increasing electricity demand. (For a larger discussion on the water sector, refer to Section 4).

53. Several regulations have been created to encourage energy efficiency in buildings and appliances, yet there are no estimates of their impact. The government of Cabo Verde has updated and created several regulations and guidelines in the last five years, such as the National Action Plan for Energy Efficiency (PNAEE), the National Action Plan for Renewable Energy (PANER) and the Action Agenda for Sustainable Energy for All (AA SE4ALL), the Code of Energy Efficiency in Buildings (CEEE), part of the Energy Efficiency Project in Buildings and Equipment (PEEE), framed in the strategic axis of promoting energy efficiency of the National Energy Sustainability Program (PNSE) aiming to ensure the construction of energy-efficient buildings, with a commitment to reducing demand for the use of electricity and guaranteeing health conditions and thermohydrometric comfort. The impact of these regulations on energy demand and efficiency is yet to be measured.

54. Land and air transport also represent an important source of energy demand. Cabo Verde has a vehicle stock of approximately 87,500 cars, which accounted for, together with air transport, about 55 percent of total diesel demand in 2013, and 50 percent of total energy demand. Additionally, the government offers an Incentive Program for the acquisition of an EV and private Charging Station (PC). The program will support the acquisition of 600 electric vehicles by providing a Euro $6,000 support on top of import duty exemptions. Moreover, fuel pricing and tax regime are relevant policy tools to encourage the uptake of EVs and disincentivize the use of fossil fuel cars (Box 4). Despite having an ambitious objective of a 100 percent EV fleet by 2050 conditional on international support, the Electricity Master Plan does not consider the expected increase in electricity demand from electromobility, which calls for an update of the EMP based on different scenarios of electric vehicle uptake. . Regarding public

transportation, the government has implemented a program of decarbonization of public road transport and replacement by electric vehicles with the target of replacing 80 percent of them by 2030.

Box 4. Fuel Tariff Structure and Fiscal Regime in Cabo Verde

Fuels are subject to 5 different taxes. Butane, gasoline and oil are subject to different degrees of import duties, while gasoline, diesel and diesel used for electricity production pay a special consumption tax. All fuels are subject to different fixed taxes and a community tax (table below). Additionally, all fuels, with the exception of marine diesel, pay VAT, although butane pays a reduced 2.5 percent rate. Diesel VAT was subject to a temporary zero rate this year due to price increases resulting from the Russian war in Ukraine. But the zero rate is expected to return to normal rate by December 2023.

Additionally, ARME defined the prices for diesel based on two components: a fixed component reviewed every three years, and a variable component reviewed every month. The fixed component includes the cost of fuel distribution and storage across all islands, while the variable component accounts for the change in international prices and taxes. ARME makes a monthly update for the fuels in the internal market, paid by end consumers, including households, companies, and ELECTRA, primarily for electricity production.

However, the automatic monthly revision of the price can be halted by the government if the pricing formula results in an increase higher than 25 percent of the current price, which was the case from April to June 2022 as a result of the effects of the Russian war in Ukraine (in addition to the VAT exemption during the same period and currently ongoing).

Product	Import duties (%)	ICE - Special Consumption Tax (%)	Community tax (%)	TSM (Escudos /Kg or Lt)	TE (Escudos /Kg or Lt)	TSMR (Escudos /Kg or Lt)	Total (TSMR+TE+TSM)	IVA (%)
Butane	5%		0.5%	0,22	0,11	0,00	0,33	2.5%
Gasoline	20%	6%	0.5%	0,17	0,09	8,00	8,25	15%
Oil	5%		0.5%	0,18	0,09	0,00	0,27	15%
Normal diesel		6%	0.5%	0,18	0,10	8,00	8,28	15%
Diesel for electricity		6%	0.5%	0,18	0,10	0,00	0,28	15%
Marine diesel			0.5%	0,18	0,10	0,00	0,28	0%
Fuel 180			0.5%	0,22	0,11	0,00	0,33	15%
Fuel 380			0.5%	0,22	0,11	0,00	0,33	15%

Source: IMF Staff using information provided by ARME.

Challenges and Policy Gaps

55. Coordination and monitoring and evaluation are key to better manage demand. The government of Cabo Verde has made progress in improving coordination between different entities yet gaps still exist. Information sharing is critical to properly forecast demand increases and plan accordingly. Additionally, it is crucial to start measuring the impact of current policies, plans, and codes. The government started by defining Key Performance Indicators in the NDC Implementation Plan led by the MAE, yet it is crucial to ramp up these efforts and continuously evaluate the situation and if needed, adapt to changing circumstances.

56. In order to better manage intra-day variations and incentivize less consumption in peak hours, its necessary to have accurate information about consumption patterns through the installation of smart meters. According to the MITE, about 10 percent of total electricity consumers

have smart meters. While the national plan for smart grids considers the scale up of smart meters, this policy should be accelerated to make more information available. Once smart meters are installed, ARME will have the necessary inputs to manage intraday variations in demand through time-of-use (TOU) tariffs. Smart meter deployment would also contribute to decrease non-technical losses, which are particularly high for Santiago. On the downside, deploying smart meters would imply additional short-term investment for ELECTRA.

Any increase in energy demand under the current conditions will place additional pressure on electricity prices and increase the government's fiscal burden. Therefore, the government of Cabo Verde must work simultaneously to address constraints identified in the energy supply section, while smoothening the increase in energy demand by sending stronger price signals and increasing efficiency. In the transport sector, decreasing emissions from road transportation by increasing the share of EVs will increase electricity demand, while water desalination and tourism will continue expanding during the next decade.

Reform Options

Recommendation 1: As part of the update of the Electricity Master Plan, define the electricity sector transition consistent with (i) projected energy needs from across the economy and (ii) commitments under the NDC.

- Coordinate across ministries, to assess the expected energy demand across the economy (including for water desalination, e-mobility, growing tourism) on an island-by-island basis through 2030 and beyond, taking into consideration intraday fluctuations – update the estimate regularly.
- Assess how the demand will be met with 54 percent RE in 2030 on an island-by-island basis, taking into account intraday fluctuations in demand and in RE generation.
- Develop and implement a phased plan for onboarding RE sources on an island-by-island basis, defining access points for RE sources and taking into account required investment in grid infrastructure including storage, to manage increased demand during peak hours, without forcing the system to ramp up, expensive thermal capacity.
- Phase procurement of RE capacity, e.g., though PPAs, in line with network absorption capacity for variable RE.
- Implement investment in grid infrastructure to allow onboarding of RE in line with the phased plan, increasing private participation in RE generation.
- Plan and implement the phased decommissioning of thermal power generation capacity to reduce overall electricity production cost, reaping the economic benefits from the transition.
- Work with development partners on stove replacement programs to decrease the number of households that use biomass as their cooking fuel.

Recommendation 2: Enhance financial stability, transparency, competition, and efficiency of the electricity sector, creating conditions conducive to private investment and promoting the energy transition.

- Complete the full legal and operational unbundling of ELECTRA.
- Ensure financial viability of the network operator and the distribution company by addressing accumulated losses and promoting efficient operations.

- Compensate for any quasi-fiscal activities through budgetary allocations, covering the gap between costs and regulated prices.
- Assign the responsibility for and ensure the execution of needed grid infrastructure investment.

Recommendation 3: Consider revising the electricity pricing structure to incentivize energy efficiency and achieve full cost recovery while protecting the poor and vulnerable.

- Undertake a distributional impact assessment to determine the impact of various policy options.
- Assess the impact of different electricity pricing structures on overall cost recovery.
- Consider implementing a modest carbon tax to disincentivize energy consumption and increase fiscal revenues.
- Mitigate the impact of any price increase for vulnerable and poor households by providing a targeted cash transfer through the social safety net, based on a fully implemented Unique Social Registry (USR).
- Develop and implement a communication strategy to effectively communicate the need for reforms in electricity pricing and how additional revenues will be used, including to protect the vulnerable and poor, demonstrating the benefit of the reform to minimize political and social opposition.

III. Water

A. Water Sector Performance and Objectives

57. Cabo Verde faces structural water shortage, and climate related threats which amplify water scarcity and pose a constant challenge for and risk to water availability and quality. Precipitation is scarce and not reliable, making groundwater one of the most important but also delicate natural resources. Increasing water use and climatic aridity and droughts, lead to the depletion of groundwater levels and contamination of coastal aquifers through saltwater intrusion, adversely affecting the quantity and quality of available freshwater.[20] Loss of soil caused by flood runoffs caused by heavy rain and a loss of organic matter decreases the water retention capacity. Consequently, at the end of the dry season, underground and surface water has been observed to fall well below historical average and in some areas water sources are going dry.

58. The government works to address these challenges by diversifying and expanding water sourcing, but important challenges remain to allow the water and sanitation sector to play its critical role in the context of climate change. Cabo Verde has a long history of using desalination for freshwater production and uses this technology to address the increasing demand for water.[21] In 2021, about 66 percent of fresh water supply stemmed from desalination (Table 8a) but the importance of desalination varies considerably between islands (Table 8b). Inefficiencies in water distribution and management cause significant technical and commercial losses, which amount on average to about 50 percent of the total fresh water entering the system. Several of the publicly owned water sector operators are running operational losses and/or have negative equity, indicating that their operation is not sustainable (Table 9).

Table 8. Water Supply, 2021

a. National Water Supply

	m^3	% of total water supplied
Water collected in underground catchments	5,362,081	36
Water produced by desalination (+)	9,892,783	66
Water supplied (=)	15,100,903	100
Billed water (-)	7,325,890	49
Loss (=)	7,775,013	51

b. Fresh Water Source by Island

	Water source in %	
	Underground	Desalinated
Santiago	54	46
São Vicente	0	100
Santo Antão	80	20
São Nicolau	80	20
Maio	0	100
Fogo	100	0
Brava	100	0
Boavista	0	100
Sal	0	100

Source: Annual report on water and sanitation services in Cabo Verde 2020/2021

[20] In volcanic island aquifers such as those of Cape Verde, a lens of fresh groundwater typically "floats" upon a layer of brackish water at the freshwater/saltwater boundary, and increased pumping may cause saltwater intrusion or other contamination. See: USGS, 2010, Groundwater Resources of Mosteiros Basin, Island of Fogo, Cape Verde, West Africa.

[21] The first desalination plant was implemented in 1959 in the island of Sal.

Table 9. Key Business Indicators for Water Sector Operators

Company	Activity	Owner	Water supplied		Billed water		Water lost	Equity	Operational result
			m3	% of total	m3	% of total	in %	CVE	CVE
Águas de Santiago (ADS)	Distribution, wastewater treatment	49% state 51% municipalities	7,578,968	48.5	2,792,525	35.7	63.2	-1,489,796,234	-190,126,784
Electra Norte	Desalination and distribution	100% Electra SA	3,824,221	24.5	2,263,943	28.9	40.8	1,565,759,563	-364,564,384
Águabrava	Capturing and distribution	100% municipalities	1,478,688	9.5	952,731	12.2	35.6	68,196,000	1,475,000
Águas de Ponta Preta	Desalination and distribution	PPP contracted by ELECTRA SA and state of Cabo Verde	537,326	3.4	499,543	6.4	7.0	228,111,886	-144,574,332
Águas e Energia da Boavista	Desalination and distribution	100% publicly owned municipality, state, SOE	465,262	3.0	408,126	5.2	12.3	-1,070,272,000	-393,431,000
SAAS da Ribeira Grande de Santo Antão	Distribution	100% municipality	450,124	2.9	237,427	3.0	47.3	na	-8,808,547
SAAS do Porto Novo	Distribution	100% municipality	412,000	2.6	161,792	2.1	60.7	na	-383,736
SAAS do Paúl	Distribution	100% municipality	300,581	1.9	123,708	1.6	58.8	na	16,704
SAA do Tarrafal de São Nicolau	Distribution	100% municipality	221,428	1.4	178,772	2.3	19.3	na	3,571,174
SAA da Ribeira Brava de São Nicolau	Desalination and distribution	100% municipality	191,600	1.2	123,293	1.6	35.7	na	-8,878,920
Águas e Energia do Maio	Desalination and distribution	100% publicly owned municipality and SOE	178,031	1.1	83,573	1.1	53.1	105,275,508	-13,502,098
			15,638,229	100.0	7,825,433	100.0	50.0		
Electra Sul	Desalination	100% Electra SA	4,809,425		4,708,049		2.1	-7,955,300,489	-1,359,242,987
Águas do Porto Novo	Desalination	80% Águas de Ponta Preta Lda 10% municipality 10% state	345,179		345,179		0.0	26,025,122	7,266,956

Source: Annual report on water and sanitation services in Cabo Verde 2020/2021

59. Despite these water sector challenges, Cabo Verde made considerable progress towards providing equitable access to water and sanitation. As a result of the government's efforts, which were supported by several donor projects, in 2019, above 85 percent of the population had access to safe drinking water and each resident had a daily average of 44 liters. Almost 70 percent of the population and around 72 percent of households had the public network as their main source of water supply. The urban/rural gap and disparities between municipalities are slowly diminishing but remain significant.[22] About 85 percent of households have access to sanitation systems.[23] Despite important investments in sewerage networks and wastewater treatment plants, in many areas wastewater is not treated, including industrial waste, and is discharged into the environment.[24]

60. The government aims to continue improving access to water and sanitation services further. By 2026 it is intended to provide 100 percent of the population with access to safe water from public networks increasing average per capita freshwater consumption from 43 to 90 liters per day, and to provide 90 percent of the population with access to sanitation services (sewage network and septic tanks), promoting gender equality and improving the accessibility and quality of services, especially in rural areas.

B. Legal and Institutional Framework

61. The country has also taken important steps to protect and manage its water resources. To this end, the 2015 National Strategic Plan for Water and Sanitation (PLENAS) defines the government's strategy for water supply and wastewater management through 2030. the PLENAS emphasizes the need for a holistic, integrated management of water improving prioritization of investments, preventing the construction of infrastructure unconnected to the network or underutilized, and using scarce water resources in a way that avoids over-extraction from aquifers, preventing the depletion of resources and declined quality through salinity, with a view to also ensure water supply and resilience of the system considering climate change. The Cabo Verdean legal framework for the water sector evolved in line with the progressive relevance of water resources management in response to increasing water shortage, caused by the country's geographic and climatic characteristics (Figure 27). To this end, the 2015 Water and Sanitation Code (CAS) provides for the governments right and obligation regarding the management of all water resources in Cabo Verde and defines broad terms of water management principles including tariff setting. The 2018 Law on Public Water Supply and Urban Wastewater Sanitation builds on the CAS and gives municipalities the ownership of public water supply and wastewater sanitation services and defines option for managing these services.[25] The setting of water tariffs and fees is regulated in the 2016 Tariff Policy of the Water and Sanitation Sector, which stipulates that the tariffs should be set to ensure

[22] In 2019, the urban/rural gap stood at about 10 percent and disparities were significant, with access ranging for example on the island of Santiago from 19 percent in São Salvador do Mundo and 41 percent in São Domingos, to 77 percent in Tarrafal; or between islands from 50 percent in Boa Vista and 94 percent in Brava. See: Cabo Verde,Voluntary National Review on Implementation of 2030 Agenda for Sustainable Development Goals (SDG).

[23] Inter community differences remain significant, with eight of the poorest municipalities in Santiago remaining below the national average.

[24] Cabo Verde,Voluntary National Review on Implementation of 2030 Agenda for SDG.

[25] Management options include, (i) direct management –management of public water supply and wastewater sanitation services by the owner of the system (pipe network, etc.), (ii) delegation – assigning the public water supply and wastewater sanitation services to a public entity owned by the municipality or the state, or (iii) concession – assigning the public water supply and wastewater sanitation services to a private sector entity,

equitable access, encourage efficient consumption, and allow the operators to recover their cost, including for administration, operation, maintenance and replacement of equipment for the provision of services. Minimum quality standards for water for human consumption and irrigation water have been legislated in 2017 and 2020, respectively.

Figure 27. Water Sector Legal Framework in Cabo Verde

Law	Objective
Resolution No. 10/2015; Approves the National Strategic Plan Water and Sanitation (PLENAS)	▪ Provide strategic guidance on water policies to the Government and Local Authorities. ▪ Guides the detailed planning processes to be carried out on each island of the Republic, to ensure universal access to water and promote the development of Cabo Verde via the integrated improvement of water supply conditions, sanitation, and hygiene, ▪ Safeguards the sustainable use of natural resources and the environment, as well as equity and gender equality and the most disadvantaged social classes.
Legislative Decree No. 3/2015; Approves the Water and Sanitation Code (CAS):	▪ Defines the fundamental principles for water resource use, setting standards that guarantee their preservation, quality, sustainability, and rational use. ▪ Defines public systems of water supply and sanitation. ▪ Establishes mechanisms for economic and financial sustainability and their enforcement. ▪ Regulates the institutional framework, the ownership of water resources, their respective planning and use, water quality standards, hydraulic works, economic and financial regime of water resources, including the payment of taxes, fees and charges, and gross public systems supply and sanitation as well as relationship with consumers, establishing the respective offences and penalties for illegal activity. ▪ Applicable to all existing water resources in the soil, subsurface and atmosphere of the Cape-Verdean territory. It includes inland surface and ground water and water produced by desalination, as well as to all public systems supply and sanitation and the reuse of wastewater and treated sludge
Legislative Decree No. 5/2018 Legal Framework for Public Water Supply and Urban Wastewater Sanitation Services	▪ Assigns responsibility for water supply and sanitation services to municipalities. ▪ Defines management models for assigning water supply and sanitation services either to a municipality (direct management), an SOE (delegation), or a private entity (concession) ▪ Delegation and concessions are defined to include the operation, maintenance and conservation of all or part of the system. ▪ Delegation and concessions may also include the construction, renovation, and replacement of infrastructure, installations, and equipment, in all or part of the system.

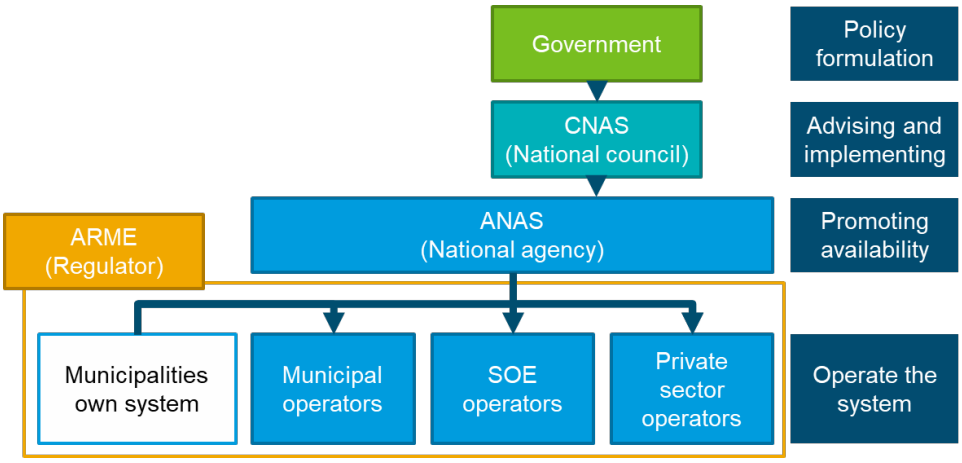
Legislative Decree No. 26/2016; Tariff Policy of the Water and Sanitation Sector	▪ Sets tariff policy for the water and sanitation sector, including its guidelines and strategies.
	▪ Applies universally to all who provide consumers with any of the activities inherent to water supply and sanitation services.
	▪ Tariff objectives:
	  ▪ Encourage rational use of water by consumers.
	  ▪ Socio-economic equity, that is, the harmonization of the level of services with the economic and financial capacity of the residents of the communities.

	▪ Social considerations, guaranteeing to all citizens, particularly those with low income, access to a basic and essential service that they are able to pay. ▪ Costs recovery incurred by the operators in the provision of services, covering operation, maintenance, and replacement of equipment for the provision of services.
Regulatory Decree No. 5/2017; Fresh Water Quality Control	▪ Establishes the criteria and norms defining essential requirements for the quality of water intended for human consumption. ▪ Establishes the control systems, sanctions regime, and protection measures, with a view to protecting human health from the resulting adverse effects of possible water contamination. ▪ Covers the entire water cycle from collection to distribution.
Regulatory Decree No. 4/2020; Irrigation Water Quality Control	▪ Establishes the criteria and parameters for controlling the quality of water for irrigation, water of surface or underground origin, desalinated water, recovered rainwater or treated wastewater. ▪ Aims to satisfy the water needs of agricultural, forestry, nurseries, lawns, and other green spaces.

Source: IMF staff

62. The national institutional framework provides for a comprehensive governance structure for the sector (Figure 28 and Figure 29). Under a reform process supported by the Millennium Challenge Corporation, the government introduced a governance structure that provides for the key public sector stakeholders with clearly defined mandates. Within the revised structure, water sector policies are under the responsibility of the government, a National Water and Sanitation Council (CNAS) plays and advisory role and has an oversight function over the National Water and Sanitation Agency (ANAS), which implements the government policies, while the Multisectoral Economic Regulatory Agency (ARME) regulates services and prices. Municipalities own urban water services and contract operators for the service provision. Services provided by operators can include distribution, desalination, and sanitation services.

Figure 28. Water Sector Institutional Framework



Source: IMF staff

Figure 29. Water Sector Governance Arrangements in Cabo Verde

Institution	Mandate
Government	▪ Defines water sector related policies for an integrated water resource management
National Water and Sanitation Council (CNAS)	▪ Advises the Government. ▪ Includes members from across the government and non-government stakeholders. ▪ Provides oversight to ensure sector policies are aligned with overall government policy direction. ▪ Provides implementation oversight of ANAS.
National Water and Sanitation Agency (ANAS)	▪ Created by Law No. 46/VIII/2013 ▪ Responsible for managing the water sector from source to disposal, including water resources, domestic water supply, wastewater, and sanitation. ▪ Acts as the grantor and manager of concession contracts for production, transport and distribution of water and collection and treatment of wastewater at national level ▪ Manages the water sector, including water abstractions and utility performance metrics. ▪ Responsible for strategic planning, project assessment and project implementation, and for ensuring compliance with sectoral laws and regulations
Multisectoral Economic Regulatory Agency (ARME)	▪ Created in 2018 by Law No. 50/2018 ▪ Is an administratively and financially independent regulatory authority. ▪ Responsible for economic regulation, tariff regulation, and regulation of the quality of services provided. ▪ Responsible for regulating the communications, energy, water and public urban and interurban passenger transport sectors
Municipalities	▪ Own public water and sanitation infrastructure. ▪ Contract service operators individually or through multi-municipal systems.
Water and Sanitation Service Company (Operator)	▪ Contracted by the municipalities to operate the water distribution and sanitation system. ▪ Can be public entities, SOE, or private entities (e.g., SPV in a concession contract)
Água de Rega (AdR) SA	▪ Concessionaire assigned by Legislative Decree No. 49/2021 ▪ Manages, explores, and distributes water for irrigation. ▪ Covers the entire national territory. ▪ Holds concession for ten years. ▪ Can use the underground and surface water sources as assigned under the law.

Source: IMF staff

63. At the operation level, reforms aiming to create water companies operating on commercial principles is ongoing. Most water utilities were run as municipal services, resulting in many small, inefficient, and essentially insolvent service providers who were unable to expand services to new customers or address losses in the system. Under the reform, the structure was consolidated with the aim

of assigning one operator per island, either by mandating a multi-municipality owned entity in the form of direct management, by delegating operations to SOEs, or by awarding concessions to private entities. The 22 municipalities on the nine inhabited islands are currently being served by 11 operating entities. Of these, four operate water distribution services, two desalinate water and are not involved in distribution, and the remaining companies operate desalination and distribution services (Table 9). Two companies are fully, or majority privately owned. Apart from the public service providers, some private services might have been established for specific tourist facilities. ANAS and the Ministry of Health monitor the adherence to legislated water quality standards for freshwater.[26]

64. The management of water for irrigation has been assigned to a dedicated national entity. In 2021, Água de Rega (AdR) SA has been granted a ten-year concession for managing, exploring, and distributing water for irrigation. The company has access to dedicated underground and surface water reservoirs with the right for extracting volumes of water specified by law. ANAS controls if water quality standards for irrigation water are respected.[27]

C. Existing Policies and Ongoing Reforms

65. The revision of the 2015 PLENAS is ongoing and expected to lead to a shift in water sourcing. The 2015 plan covers the period through 2030 but should be updated every five years. However, due to pandemic related delays, the government is currently working towards the first update. The plan forecasts water needs and lays out the government plans for how to meet these needs. Until recently, the government had focused on expanding infrastructure for harvesting surface water, i.e., rainwater and moisture, and invested in dams and dikes. This is also reflected in the current version of the PLENAS. However, given lower than previously expected levels of precipitation, less than the expected volume of water can be generated from surface water. The authorities mentioned that the revised plan will rely mostly on desalination for meeting the growing demand for water without putting additional stress on groundwater resources. In addition, AdR is running a pilot exploring new technologies for lower-cost desalination for producing water suitable for irrigation but not necessarily for human consumption. The government expects to see the structuring of the water desalination project for irrigation in full operation by 2030, guaranteeing water balance for the boreholes and sustainability for groundwater. If successful, the technology could become a viable option to provide the water volumes needed to work towards the government's aspiration of introducing irrigation to all agriculture areas.

66. The government is working with the water operators to address inefficiencies. The water efficiency program currently prepared by ANAS and the operators will be a key reform if it can help to reduce losses. The level of technical and commercial losses of the largest water sector operator Águas de Santiago (ADS), for example, undermines the entity's economic viability. Given the reported tariff structure and the price charged by water producers, ADS, which is serving mostly non-commercial customers is making a substantial loss on most of the water it sells (Box 5). Consequently, the company is reporting an operational deficit and shows a large negative equity position, probably caused by accumulated past losses. ADS mentioned that the losses can be attributed half to technical losses and half to commercial losses. While commercial losses, which include theft and failure to collect bills can

[26] Regulatory Decree No. 5/2017

[27] Regulatory Decree No. 4/2020

partly be addressed by more efficient management procedures, an eradication of commercial losses would require investing in meters. Technical losses on the other hand can be assumed to be mostly related to quality of the distribution network (Table 9 indicates that losses are occurring mostly in distribution and not in production). ADS, like other operators managing legacy networks, has limited impact on the quality of the network as the operation contract is designed for ADS to cover operation and maintenance cost only.

Box 5. Water Pricing and Financial Performance of Operators

Tariff System

The water tariff has two components: the production and the distribution cost, according to the following formula:

WT = Dist + (1+d)Prod

Where WT is the average tariff to provide water, Dist is the distribution cost per unit, prod is the production or acquisition cost per unit, and –d is an efficient loss.

The level of water tariffs is subject to a political constraint, whereby the government does not want households to pay more than 5 percent of their income for water consumption.

Consumer	Number of customers	Volume of consumption	% of total consumption
Household	**98,619**	**2,258,807**	**76**
0-5 m3	62,910	1,476,730	49
6-10 m3	26,465	333,168	11
over 10 m3	9,244	448,884	15
Commercial	**2,793**	**225,032**	**8**
0-20 m3	2,394	127,382	4
over 20 m3	399	97,523	3
Industry	**84**	**26,123**	**1**
Tourism	**112**	**45,337**	**2**
NGO, State, and SOE	**1,219**	**386,465**	**13**
Own consumption and fountains	**134**	**42,320**	**1**
Total	**102,961**	**2,984,084**	**100**

The social tariff, described in Box 2, also applies for water. Households registered in tiers 1 and 2 of the Unique Social Registry are eligible for 100 percent subsidy. The operators are compensated from the budget for providing the subsidy. The rest of households and commercial customers are subject to an Increasing Block Pricing (IBP) (Table). Single customer specific tariffs are defined for other users, including industry, tourism, and public entities.

Quasi-Fiscal Activities

The law on water tariff asks for setting tariffs at a level that covers costs and endures financial sustainability of the operator. However, it requires at the same time that water is priced to be accessible for everybody. Especially in the context of high-cost desalination, there might be a gap between the affordable and the cost recovery tariff. If an affordable tariff below cost recovery rate is being applied, the selling of water is no longer a commercially profitable activity but becomes a quasi-fiscal activity. For transparency and to allow the operator to be managed like a for-profit entity, it should be compensated from the budget for the cost causes by the quasi-fiscal activity. Costing the quasi-fiscal activity requires a detailed analysis of the cost of service and the operator's efficiency.

ADS Operational Profitability

According to information provided by ADS, the household tariffs are currently set at USD2.30, USD3.50, and USD5 per m3 for the three volume blocks. About half of all the water delivered to customers was charged at the lowest tariff. At the same time, ADS reported that under existing water purchase agreements, it is buying desalinated water for between USD1.40 and USD1.80 per m3, depending on the provider. Given that the company is losing over 60 percent of the water it sources, the price of every m3 sold amounts to between USD3.50 (1.4/0.4) and USD4.50 (1.8/0.4). Based purely on the cost of water and the tariff charged for water sales and leaving aside the cost of operation and maintenance, the company is making a loss on every m3 sold under the two lower volume tariffs, which stand for 60 percent of billed consumption for the national average. Given the demographic of Santiago the portion of consumption falling in these tariff groups could be higher than average.

Source: AMRE and IMF Staff

67. Additional water sector related reform measures are being contemplated but have yet to be fully formulated to be implemented. In this regard, the government is looking into expanding irrigation systems across the country with a view of establishing agriculture as a profitable business option and to adapt to the climate change related implications of precipitation patterns, which could lead to longer dry periods and droughts. Expanding irrigation water distribution systems into rural areas and creating low-cost desalination options will be key for implementing this reform but would require public investment in the distribution network. In the tourism sector, where the availability and quality of water and sanitation is above the national average, the government is looking into developing circular water systems where sewage is treated to reuse the water instead of discharging it into the ocean. The law defining the legal requirements for the quality of recycled water is in place. In the medium term, the sewage systems in urban areas could also be developed in this direction. In this context important albeit not yet quantified investment in sewage and sewage treatment capacity will be needed. The government is also looking into improving the infiltration and replenishment of water resources through nature-based-solutions, such as soil cover for humidity, altitude moisture and rain vegetative harvesting, slope stabilization, and agroforestry. To avoid damaging or depleting natural water resources, e.g., underground water reservoirs, it will be important to fully understand how much natural water resources are and will be available going forward and to determine how big the water gap is that needs to be filled from other resources, i.e., either from saving water or from desalination.

D. Challenges and Policy Gaps

68. While the restructuring of the water sector creates opportunities for private sector investment in the sector, public sector resources are required to strengthen the sectors financial sustainability, reducing risk, and creating an environment conducive for investment. In infrastructure sectors like water, the distribution network is best managed by the public sector. However, the production and treatment of water can offer opportunities for private investment under water purchase agreement like arrangements. In this context, the financial situation (solvency and liquidity) of the operators can be a major deterrent for potential private investors, who are looking for a reliable business partner.

- **Reducing water losses**. To ensure their financial sustainability going forward, the operational losses have to be addressed. For this purpose, efficiency measures addressing commercial losses can be an important first step. The need for upgrading or expanding the coverage of metering devices to avoid theft and for enforcing bill collection procedures should be assessed. To reduce technical losses, the quality of the network needs to be assessed and potentially important investment in upgrading or rehabilitating the network might be required.

- **Recovering full cost.** For the operator not to make a loss even after having addressed water losses, it needs to be compensated for the full cost of the activities it is undertaking for the government. If it is expected to undertake investment in infrastructure, e.g., metering and/or network, the amortization of the investment needs to be included in the cost in addition to the cost for operation and maintenance. If the investment in the network cannot be undertaken, to the extent that the technical loss cannot be reduced, the cost related to this loss needs to become part of the cost-of-service provision. Should the regulated tariff, out of equity considerations or otherwise, be set below cost recovery, the service constitutes a quasi-fiscal activity and should be compensated for by the government from the budget.

- **Recapitalization**. For the operator to be a reliable business partner and to have room for operating as a provide like entity, it would be important to address the stock of negative equity of some of the operating companies by recapitalizing the entities, all in the context of ensuring their operational viability to avoid the accumulation of new losses and debt.

- **SOE oversight.** The operators should be closely monitored to prevent financial slippages and to ensure efficient management and operation of the entity once the operator has been put on financially sound footing and is being fully compensated for the legitimate cost of the service that he provides.

69. The expansion of water supply for human consumption and for irrigation is expected to rely on desalination, which will require considerable energy supply, calling for close coordination between the sectors. While water and energy plans are being updated, the mission could not obtain reliable data on water demand projections. Numbers presented in the 2015 PLENAS suggest that demand for water could be five times higher in 2030 than in 2022. Irrespective of the exact numbers, the expected demand increase linked to growing tourist numbers as well as from the ambitious irrigation program are considerable. While most desalination plants (not for the largest), are planned to be built with their own solar-based energy supply, to be profitable, the plants must operate during daytime as well as during the night. They therefore either need to invest in their own battery storage capacity or would turn to the electricity grid to cover their nighttime electricity needs. To ensure continued stability of the electricity network, the electricity grid must be fit for the highly volatile energy demand pattern that is created by this setup.

70. While the block tariff structure encourages efficient use of water, it takes away some important revenue collection opportunities. The bottom block of the block structure could be seen as a social tariff. Giving high volume users part of their consumption at the social tariff might not be necessary and the pricing structure could be revised to achieve full cost recovery at least from those users who can afford this. A distributional impact assessment can provide the relevant information for redesigning the tariff structure in this regard..[28] Where social or low volume tariffs are kept below cost recovery, the government is subsidizing water consumption. To the extent possible, social mitigation measures are more efficient when provided through cash transfers than by subsidizing the consumption of specific products and services. Substituting the consumption subsidy by a cash transfer provides incentives and the opportunity for efficient allocation of resources and for saving resources where possible. Such a reform needs to be prepared and accompanied by an efficient communication strategy demonstrating the benefit of the reform to minimize political and social opposition (Annex II).

71. The authorities recognize that there are some challenges in the implementation of the legislated framework. To this end, the national authority equivalent to the state and technical regulators in matters of water, sanitation, and waste responsible for the improvement of service quality need to be operationalized, and the of water quality monitoring and control should be strengthened. To move towards a circular water sector, households need to be encouraged to connect to sewage as soon as connections are offered and as long as the sewage treatment capacity is available. This is already a legal

[28] The mission could undertake the assessment if the relevant household budget survey data are made available. The analysis could then be added to the report.

requirement but is not being enforced and households might have economic disincentives for moving from septic tanks to using the public sewage system.

Reform Options

Recommendation 4: Address losses in the water sector to move towards an economically and ecologically efficient water management

- Identify and implement water efficiency measures to reduce commercial losses.
- Identify and assess the benefits and the affordability of infrastructure investment needed to address technical losses.
- Allocate the responsibility for undertaking investments in the network and provide required resources.

Recommendation 5: Ensure economic sustainability of water sector and address service quality issues, ensuring room for tariff adjustments

- Determine cost recovery tariff taking into account the full cost of service provision, i.e., including cost of maintenance and amortization of infrastructure required for service provision (among others, this would cover the cost of restoring, updating, and/or expanding the distribution network).
- Determine the difference between the tariff charged and the cost-recovery tariff.
- Ensure the operational viability of the operators by compensating them – transparently from the budget – for any difference between actual cost of efficient service provision and cost recovery tariff (i.e., for quasi-fiscal activities), including where due to social or subsidized tariff.
- Ensure the financial viability of the operators (i) by addressing debt accumulated due to past losses, and (ii) by ensuring the efficient management of the operation with the given infrastructure.
- Improve the service quality to break the circle of low price for bad quality service.

Recommendation 6: Consider revising water tariff structure to achieve full cost recovery from all or part of the users while compensating poor and vulnerable households with social transfers

- Undertake a distributional impact assessment to determine the impact of various tariff options.
- Design and implement a tariff structure that closes as much as possible to gap towards cost recovery.
- Mitigate the impact of any price increase for vulnerable and poor households by providing a targeted cash transfer through the social safety net, based on a fully implemented URS.
- Develop and implement a communication strategy to effectively communicate the need for reforms in water pricing and how additional revenues are needed to cover the cost of water provision and how they will be used, including to protect the vulnerable and poor.

Recommendation 7: Improve coordination of planning within the sector and with other sectors

- Update the forecast for availability from underground and surface water and for water demand for from various sectors and by region for human consumption as well as for agriculture.
- Determine need for desalination and pumping and assess energy needs (volume and timing).
- Update sectoral plans, i.e., the PLENAS and plan for agriculture and irrigation, (i) to provide a basis for sectoral investment planning and (ii) to share information across sectors, e.g., with the energy sector to ensure availability of needed energy.

IV. Climate Resilience

A. Social Safety Net (SSN)

Legal and Institutional Framework

72. The Ministry of Family and Social Inclusion (MFSI), primarily through the General Directorate of Social Inclusion (DGIS), oversees the design, implementation, and coordination of social inclusion policies and programs. For policy implementation, the MFSI relies on different institutions such as the National Center of Social Pensions and the municipal councils for the implementation of programs (Figure 30).

Figure 30. Key Laws and Strategies for the SSN

Law	Objective
Law No. 54/2016 establishing structure and responsibilities of the Ministry of Family and Social Inclusion	▪ The MFIS oversees the design, implementation and coordination of social inclusion policies and programs aiming at protecting vulnerable families and individuals and contributing to gender equality, as well as to the design and implementation of policies for the integration of the immigrant population.
Law No. 131/V/2001 on the Basic law of Social Protection	▪ Defines the bases of social protection as a permanent structure at three levels: safety net, mandatory social protection and complementary social protection. The safety net is based on national solidarity, reflects a distributive nature and covers the entire resident population that is in a situation of lack or reduction of means of subsistence and cannot fully assume its own protection.
Law No. 41/2020 creating the Social inclusion Income	▪ This law creates and determines the eligibility criteria to access the social inclusion income. granted according to the poverty and/or social and economic vulnerability of the household in the social protection system at the level of the safety net.

Source: IMF Staff

Existing Policies and Ongoing Reforms

73. Cabo Verde stands out in Sub-Saharan Africa with one of the highest proportions of social spending relative to its GDP, allocating 6.5 percent of GDP for social programs in 2022, and reaching 55 percent of the total population. The nation has one of the most sophisticated social protection systems in the region, consisting of three key components: the safety net, mandatory social protection, and complementary social protection, encompassing both contributory and non-contributory programs. Since 2017, Cabo Verde's Social Protection System extended its coverage to 55 percent of the total population. Approximately 33 percent of the total population benefited from the social insurance system primarily through health assistance. Social assistance reached around 22 percent of the total population.

74. Implementation of Social Protection Programs in Cabo Verde follows a decentralized approach, which has resulted in the proliferation of programs at the central and local levels. The MFSI designs, oversees and funds programs, but their execution is the responsibility of municipalities. Municipalities also partly finance the programs through taxation and other resources, and they independently lead their own social protection initiatives. The most recent social protection assessment

conducted in 2016 identified 40 social protection programs implemented by national institutions and an additional 181 directly implemented by municipalities.

Challenges and Policy Gaps

75. The social safety net also has an important role to play when it comes to climate adaptation. The social safety net has been increasingly recognized as a necessary tool to achieve a just transition. In addition, it can also be designed in a flexible way to expand coverage to groups affected by both climate-related hazards and slow-paced climate change. To this end, the social safety net can use different eligibility criteria and targeting mechanisms depending on the situation. For example, it can scale support in specific islands or municipalities affected by a shock that did not affect other islands or municipalities. If the cash transfer mechanism is already in place, and the government is making progress in having geo-referenced information about households, then the fundamental conditions to increase the flexibility and capacity to respond in disasters are already in place. A well designed social safety net, in particular through cash income support, can also mitigate the adverse implications of price increases for basic goods and services included in the minimum consumption basket, including water, energy, and food. However, for the social safety net to fulfill this role in Cabo Verde, some challenges in its design and implementation would need to address.

76. The Social Protection System in Cabo Verde still grapples with significant exclusion errors, with around 40 percent of poor households not covered by social programs as of 2017. Despite high economic growth from 1990 to 2008 and achieving substantial reductions in poverty rates, which fell from 56.8 percent in 2001 to 35.2 percent in 2015, the subsequent decade witnessed income stagnation. Around 35 percent of the population continues to face poverty, with a noteworthy concentration of 85 percent residing in three islands: Santiago, Sao Vicente, and Santo Antao. Poverty also exhibits a pronounced rural component, as more than half of the rural population lives under poverty conditions. Extending social assistance coverage to target the poorest individuals, particularly youth in rural areas, represents a pressing challenge for the government of Cabo Verde.

77. The decentralization of social protection programs in Cabo Verde, coupled with a lack of coordination tools, has resulted in a highly fragmented system. As of 2016**,** both national and local governments were implementing over 220 programs, with almost 80 percent of them implemented by understaffed and underfinanced municipalities, with relevant administrative capacity constraints. Strengthening and capacity building within municipalities are essential steps to address these challenges effectively. Additionally, despite substantial investment in information and communications technology systems, the systems for tracking the results of government programs are not functioning adequately. Ensuring the proper functioning of these systems is crucial for the effective coordination and monitoring of social protection initiatives in the country.

78. Recognizing the challenges posed by extensive and uncoordinated social assistance, the government of Cabo Verde has taken steps to establish a Unique Social Registry (USR). With the support of the World Bank, Cabo Verde has registered 65 percent of households within the USR, encompassing 80 percent of the total population. These Households are further categorized into four income groups, with the first three reflecting varying degrees of social difficulties, while the fourth group comprises non-poor households. The government expects this tool will be particularly helpful in reducing inclusion and exclusion errors within the existing social protection system, particularly due to a door-to-

door registration process. Eligibility for various programs is subsequently assessed against the URS. As of 2023, 16 social programs have been designed based on the information derived from the single registry, with the majority of benefits targeted towards groups 1 and 2.

79. In addition, Cabo Verde has also made progress in decreasing exclusion errors. Informed by the USR, the government piloted a cash transfer program, *the Rendimento Social de Inclusão Program (RSI)* with 2,157 households benefitting from the Program. The RSI program is a poverty graduation program, providing cash transfers and facilitating access to productive assets, with the overarching goal of addressing the structural causes of poverty. Initially planned for a two-year duration, the program was extended during the pandemic, with relaxed eligibility criteria to enable more households to access its benefits. Presently, there are no plans for further extensions of this program beyond its updated duration. However, when combined with the USR, the RSI program can serve as a foundation for a strengthened social protection system capable of effectively targeting impoverished households and facilitating cash transfers to their bank accounts.

Reform Options

Recommendation 8: Strengthen the social safety net to enable the efficient support of poor and vulnerable in the context of energy and water sector reforms, and to prepare for potential support needs due to climate change related challenges.

- Complete the implementation of the Unique Social Registry, to achieve 100 percent coverage of households registered, especially to include rural households, which are often poor and vulnerable to climate change implications.
- Ensure the efficient use of public resources in the SSN by reducing the overlaps between the national and municipal level.
- Use the current structure of the RSI program to design and implement a suitable and stable cash transfer program, financed form additional revenues generated from energy or water price reforms.

B. Disaster Risk Management (DRM)

Legal and Institutional Framework

80. Cabo Verde has planned for a comprehensive DRM framework. The 2021 NDC update commits the government to implementing the 2018 National Strategy for Disaster Risk Reduction (ENRRD) 2018-2030. The ENRRD aims at providing an effective policy plan for managing risks, and minimizing damage and associated losses through preventive measures and covers all the key aspects and good practice frameworks in DRM. To this end, it refers to the need for coordination and decentralization of DRM, refers to the Sendai Framework for Action on Disaster Risk Reduction 2015-2030, and acknowledges the special challenge small island developing states (SIDS) face with respect to the effective management of disaster risks. It also mentions the exposure of various economic sectors and the role of different public and private sector stakeholders in disaster risk management. Disaster risk reduction aspects are also covered in the regulations for spatial and urban planning and the National Policy for Territorial Planning and Urbanism from 2018 and 2020, respectively. The MOF included disaster risks in the Fiscal Risks Statement (Declaração dos Riscos Orçamentais) with estimates of the economic impact. The government also created the National Emergency Fund (Fundo Nacional de

Emergência (FNE)) which is funded through a defined annual budget allocation aims to cover recurrent emergency and recovery expenditures.

Challenges and Policy Gaps

81. However, the DRM system as operational in Cabo Verde relies largely on the National Civil Protection and Fire Service (SNPCB) under the Ministry of Internal Affairs and focuses on disaster preparedness and response.[29] The SNPCB, is assigned the responsibility for implementing the ENRRD, thus the public sector DRM activities mainly focus on the preparedness for and the immediate response to disasters as would be the SNPCB's main area of responsibility. Some work is under way for introducing early warning systems by the SNPCB and the MAE is working on an early warning system for the agriculture sector. However, a more strategic approach to DRM would be needed to effectively manage disaster risks by defining and implementing the full DRM management cycle (Figure 31), in which all the steps in the cycle support and inform each other step. This would allow to minimize the risk and cost of disasters and of disaster recovery, thereby protecting public finances. Other SIDS had positive experiences addressing the challenges of DRM and climate change in close coordination, e.g., by assigning the responsibility for both to a high-level council at the level of the Cabinet or directly under the Prime Minister.[30]

Figure 31. Disaster Risk Management Cycle

Source: UN

Reform Options

Recommendation 9. Strengthen leadership for DRM to cover and effectively manage the entire DRM cycle.

- Assign the role for leading and coordination the DRM efforts to a high-level entity (e.g., at Council of Minister level or under the Prime Minister's Office), potentially together with the responsibility for climate change adaptation policy coordination.
- Develop and integrate risk prevention, risk mitigation, and disaster recovery in the DRM framework.

C. Climate Change Management Coordination, Information, and Governance

Legal and Institutional Framework

82. As a party to the UN Framework Convention on Climate Change (UNFCCC), Cabo Verde is actively contributing to the international efforts towards carbon emission reductions and to strengthen its resilience towards climate change. Cabo Verde signed the Paris agreement in 2016

[29] World Bank, 2020, Cabo Verde Emergency Preparedness and Response Diagnostic: Building a Culture of Preparedness

[30] UN, 2012, Disaster risk reduction and climate change adaptation in the Pacific - an institutional and policy analysis.

and assigned the National Directorate of Environment under the MAE as the Designated National Authority to the UNFCCC. Cabo Verde submitted its initial national determined contribution in 2015 and its first NDC in 2017. These were updated in 2021 and commit the country to reducing GHG emissions compared to BAU by 2030 and to reach net-zero and cover adaptation aspects across all key sectors. In 2022, Cabo Verde also submitted a National Adaptation Plan.

83. The mainstreaming of climate change as implied by the NDC can be an efficient way for managing climate change related issues but depends on the capacity at the sectoral and sub government level. The NDC is based on the PEDS II, refers to sectoral plans and strategies, and assigns the responsibility for the sectoral measures to the respective sectoral ministries and agencies, and to the 22 municipalities, respectively. This is consistent with mainstreaming climate change. i.e., integrating climate change into sectoral and subnational level policies and plans. In general, sectoral and subnational players are best positioned to understand and manage climate change related challenges in their respective areas. In this setting, the PEDS II guides and coordinates policies across sectors and the NDC summarizes climate change related ambitions and activities across all sectors and can serve as a communication tool. The government's ability to prepare for climate change implications depends on the sectors' capacity for assessing and reacting to these challenges and to coordinate across sectors.

84. In Cabo Verde, the feasibility. In discussions with various sectors, it transpired that most officials are concerned about and occupied with the assessment of the climate and environmental impact of activities and policies. The need for assessing climate change implications on actives and policies and to determine climate vulnerabilities is not yet perceived as a priority. While the government started working on closing important information gaps for example related to climate scenarios and hazard vulnerability mapping, these activities, while being interrelated and interdependent, seem to be initiated and progressed in isolation. In this context, the INGT is launching a pilot project for mapping climate hazard vulnerabilities in five communities, but is not aware of the climate scenarios that would be applicable for such a mapping exercise. At the same time, the meteorological services are working on identifying and defining climate scenarios relevant for Cabo Verde. This activity is mostly progressing in response to a push from international technical partners without any perceived demand for this information from within the administration. Sectors which rely largely on private investment, for example tourism, did not seem to be concerned about the long-term implications of climate change for the sector or for individual projects. While private investors in long-term projects would perceive a lack of information on expected climate related developments and hazards as a risk and thus require higher returns on their investment and consequently underinvest, the lack of information was not raised as a problem, neither by the public nor by the private sector.

85. In addition to information gaps, coordination between key economic sectors with substantial interlinkages remains insufficient. As mentioned in previous sections, the strategies and plans of several key sectors, including energy and water are being updated. However, cross sectoral coordination in this process seems to be limited despite important interlinkages through the energy demand created by additional desalination facilities or the cost implications of the available energy mix on water production and distribution.

86. The government, as part of its Climate Action Program, is launching a communication campaign to create greater awareness of the issue of climate change. The Climate Action Program

is currently being prepared under the MAE with the support of LuxDev and aims to support the implementation of the NDC and NAP. The communication component of the program foresees increasing society's climate literacy regarding climate resilience by strengthening communication between central and local government actors and through external communication with the private sector and civil society.

Challenges and Policy Gaps

87. While Cabo Verde has legislated the international commitments towards the UNFCCC, the legal framework for climate change management at the national level is being developed. The 1992 Constitution anchors the right to a healthy environment and defines the general rights over key resources, including water. Cabo Verde legislated the adaptation of the Kyoto protocol (2012) and the Paris agreement (2017). The government has also approved and legislated various sectoral plans that aim to contribute to the governments emission reduction and/or adaptation efforts, e.g., the National Action Plan for Renewable Energy (PNAER) (2015) and the PLENAS (2015). In addition, the government introduced institutional arrangements and assigned tasks for managing climate change, e.g., in the MAE. However, an overarching climate law, providing a comprehensive institutional framework with clearly assigned roles and responsibilities, which create accountability and efficient procedures that promote coordination, has not been legislated. To fill this gap, the government is drafting a climate change law, which is expected to allocate climate change related roles and responsibilities and to define the institutional arrangements and procedures for developing and coordinating climate change related policies and activities for adaptation and mitigation, with a view to achieving the country's mitigation targets and to strengthen resilience against the impact of climate change.

88. Strong leadership would be needed to strengthen the governance framework with the aim to ensure coordination of climate change related policies and sectoral planning. While the 2021 NDC update and 2021 NAP report on the roles and responsibilities of existing institutions in the context of climate change, they also stress the need for to strengthen its climate change governance framework by enhancing the strategic leadership function. To complement the existing operational structure for climate change management, which was mainly provided by National Directorate of Environment (DNA) under the MAE, and the National Directorate of Planning (DNP) under the MOF, the government in 2023 introduced a National Council for the Environment and Climate Action (NCECA), which is under the MAE with representatives from across various ministries, and government entities, as well as the civil society.[31] While the NCECA is under the MAE, the 2021 NDC update suggested to rely on a higher level National Climate Council (NCC) chaired by the MAE and co-chaired by the MOF. The structures for engaging the municipal level and the civil society in climate change policy and activities are envisaged under the 2021 NDC update but have yet to be established (Figure 32). While the structure covers the whole spectrum of activities from strategy to implementation, it could be useful to engage all sectors by vesting the strategic leadership role in a committee that is at the Council of Minister of PM level.

[31] Full list of NCECA members as per Resolution No. 35 from 2023: Representative from the Ministry of Agriculture and Environment (chairing), representatives from the ministries responsible for finance; tourism and transport; commerce, industry and energy; infrastructure and territorial planning; territorial cohesion; foreign affairs; internal administration; education; and youth and sport, the president of the environment fund, representatives from the agriculture sector, meteorology, national association of municipalities, environmental NGOs, consumer protection, and the university.

Figure 32. Climate Governance Arrangements in Cabo Verde

Institution	Mandate
Strategic level (legislated in 2009 but not operational)	
Interministerial Committee for Climate Change (NCCC) Chaired by the Minister of Agriculture and Environment and Co-chaired by the Minister of Finances and Business	▪ Issues an opinion, whenever requested, on sectoral policy proposals, legal instruments and standards that contain a relevant component for mitigating climate change and adapting ▪ Provide input to the Government's positions in the negotiations under the UNFCCC ▪ Consider opinions on project activities that result in reduced emissions ▪ Carry out coordination with entities representing civil society
Strategic level (legislated in 2023 but not operational)	
National Council for the Environment and Climate Action (NCECA) Chaired by representative of MAE	▪ Consultative body for government ▪ Proposes a framework for consultation and reflection on strategies, policies and programs ▪ Assesses and issues an opinion on national and sectoral programs and strategic plans regarding issues of environmental protection and climate change ▪ Proposes legislative and regulatory measures.
Operational level (operational)	
National Directorate of Environment (DNA) @MAE	▪ Designated National Authority to the UNFCCC ▪ Responsible for climate accountability and communication under the UNFCCC ▪ With DNP in charge of coordinating the technical and sectoral implementation of the NDC and the NAP ▪ Leader of the Climate Change Committee (established 2008)
National Directorate of Planning (DNP) @Ministry of Finance and Business Development	▪ Supports the Government of Cabo Verde in defining and elaborating the national strategy for development planning ▪ Coordinates the elaboration, implementation, follow-up, and evaluation of the national development plan ▪ With DNA in charge of coordinating the planning and financial implementing of the NDC and the NAP ▪ Responsible for coordinating and mobilizing International Climate Finance (ICF) ▪ National Designated Authority to the GCF ▪ In charge of transposing the national climate planning to the municipal level
Resource Mobilization Service @DNP	▪ Monitors and coordinates with different Governmental institutions the disbursement and follow-up of international funds and centralizing information ▪ Enables monitoring and evaluation of results ▪ Monitors implementation of commitments
National Institute of Meteorology and Geophysics (INMG) @MAE	▪ Responsible for climate services framework ▪ Collects, compilates, and treats and monitors meteorological, climatic, and geophysical variables ▪ Focal point of the UNFCCC
National Civil Protection and Fire Service (SNPCB)	▪ Responsible for the early warning component at national and local levels ▪ Responsible for local Disaster Risk Reduction (DRR) platforms
Decentralized level (to come)	
Municipal Development Platform	▪ Promotes the involvement of all municipalities in the processes of planning and implementing climate actions ▪ Serves to guarantee the participation of municipalities in the definition and monitoring of climate policy and long-term low emissions development 2050
Strategic level (to come)	
National Climate Forum	▪ Empowers civic climate action and fosters citizen's engagement ▪ Is open to voluntary participation from 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. ▪ Addresses its recommendations to the Government

Source: IMF mission

89. In addition to strong leadership and clearly allocated roles and responsibilities, efficient coordination requires well designed mechanisms and procedures. The legal framework in many areas assigns responsibilities to entities but there are no procedures in place for the entities to fulfill their role. For example, to ensure the coordination of strategic plans across sectors, either under the PEDS or the UNFCCC framework, the DNP and DNA would need a process that ensures that sectors provide their update plans in time and that these plans consider cross sectorial linkages. In this regard, in the context of both planning processes, sectors could be asked to provide their inputs for these plans confirming that they have informed all sectors that would be affected by their activities about the impact that they would have on the other sectors, and that they have in turn taken into account the impact that other sectors would have on them. For example, the water sector would not only have to plan for how it will address the anticipated water demand but would also have to inform the energy sector about the energy demand (volume and intraday fluctuation) that would come with the expansion of desalination. Annexes III and IV provide examples for how to ensure coordination through a planning process and how to formalize the reporting on cross sectoral coordination.

Reform Options

Recommendation 10. Strengthen the institutional framework for managing climate change and design and implement efficient procedures for coordination.

- Assign the leadership for driving climate change related policy coordination to a Council of Minister level body (potentially together with DRM).
- Introduce procedures that ensure that each stakeholder can play his/her role in climate change related policy planning and implementation effectively (e.g., through a coordination mechanism like the one proposed in Annex IV).
- Hold entities accountable for undertaking the coordination effort by requesting them to confirm that sectoral interlinkages are reflected in their respective sectoral plans.

Recommendation 11. Create a common understanding of and awareness for climate change and climate change risks within government.

- Create and disseminate information on what impact to expect from climate change, i.e., by providing climate scenarios and hazard vulnerability maps.
- Encourage taking a long-term forward-looking view by aligning risk assessment horizon with the timeframe affected by the decision to be taken.
- Create appreciation for need to protect against climate change, e.g., by disseminating hazard vulnerability maps that can support the climate vulnerability assessment for projects and policies.

Annex I. Draft Action Plan

Recommendations /Actions	Short term	Medium term	Responsible Agency	TA need / provider
Energy				
Recommendation 1. As part of the update of the Electricity Master Plan, define the electricity sector transition consistent with (i) projected energy needs from across the economy and (ii) commitments under the NDC				
▪ Coordinate across ministries, to assess the expected energy demand across the economy (including for water desalination, e-mobility, growing tourism) on an island-by-island basis through 2030 and beyond, taking into consideration intraday fluctuations – update the estimate regularly	✓		MITE	No
▪ Assess how the demand will be met with 54 percent RE in 2030 on an island-by-island basis, taking into account intraday fluctuations in demand and in RE generation	✓		MITE	No
▪ Develop and implement a phased plan for onboarding RE sources on an island-by-island basis, defining access points for RE sources and taking into account required investment in grid infrastructure including storage, to manage increased demand during peak hours, without forcing the system to ramp up, expensive thermal capacity	✓		MITE	IRENA?
▪ Phase procurement of RE capacity, e.g., though PPAs, through in line with network absorption capacity for variable RE.		✓	MITE	No
▪ Implement investment in grid infrastructure (e.g., storage) to allow onboarding of RE in line with the phased plan, increasing private participation in RE generation	✓	✓	MITE	No
▪ Plan and implement the phased decommissioning of thermal power generation capacity to reduce overall electricity production cost, reaping the economic benefits from the transition	✓		MITE	Yes tbd
▪ Work with development partners on stove replacement programs to decrease the number of households that use biomass as their cooking fuel	✓		MITE / MFSI	Yes tbd
Recommendation 2. Enhance financial stability, transparency, competition, and efficiency of the electricity sector, creating conditions conducive to private investment and promoting the energy transition				
▪ Complete the full legal and operational unbundling of ELECTRA	✓		MITE	WB
▪ Ensure financial viability of the network operator and the distribution company by addressing accumulated losses and promoting efficient operations	✓	✓	MITE	WB?
▪ Compensate for any quasi-fiscal activities through budgetary allocations, covering the gap between costs and regulated prices	✓	✓	MITE	Yes e.g., IMF
▪ Assign the responsibility for and ensure the execution of needed grid infrastructure investment	✓	✓	MITE	No
Recommendation 3. Consider revising the electricity pricing structure to incentivize energy efficiency and achieve full cost recovery while protecting the poor and vulnerable				
▪ Undertake a distributional impact assessment to determine the impact of various policy options	✓		MITE / MFSI	Yes e.g., IMF, WB

Recommendations /Actions	Short term	Medium term	Responsible Agency	TA need / provider
▪ Assess the impact of different electricity pricing structures on overall cost recovery.		✓	MITE / ARME	No
▪ Consider implementing a modest carbon tax to disincentivize energy consumption and increase fiscal revenues		✓	MOF	Yes e.g., IMF
▪ Mitigate the impact of any price increase for vulnerable and poor households by providing a targeted cash transfer through the social safety net, based on a fully implemented URS		✓	MFSI	WB
▪ Develop and implement a communication strategy to effectively communicate the need for reforms in electricity pricing and how additional revenues will be used, including to protect the vulnerable and poor, demonstrating the benefit of the reform to minimize political and social opposition	✓	✓	MITE	Yes tbd
Water				
Recommendation 4. Address losses in the water sector to move towards an economically and ecologically efficient water management				
▪ Identify and implement water efficiency measures to reduce commercial loss	✓		ANAS	No
▪ Identify and assess the benefits and the affordability of infrastructure investment needed to address technical losses	✓	✓	ANAS	Yes tbd
▪ Allocate the responsibility for undertaking investments in the network and provide required resources	✓	✓	ANAS	No
Recommendation 5. Ensure economic sustainability of water sector and address service quality issues, ensuring room for tariff adjustments				
▪ Determine cost recovery tariff taking into account the full cost of service provision, i.e., including cost of maintenance and amortization of infrastructure required for service provision (among others, this would cover the cost of restoring, updating, and/or expanding the distribution network)	✓		ANAS	Yes e.g., IMF
▪ Determine the difference between the tariff charged and the cost-recovery tariff	✓		ANAS	No
▪ Ensure the operational viability of the operators by compensating them – transparently from the budget – for any difference between actual cost of efficient service provision and cost recovery tariff (i.e., for quasi-fiscal activities), including where due to social or subsidized tariff	✓	✓	ANAS	Yes e.g., IMF
▪ Ensure the financial viability of the operators (i) by addressing debt accumulated due to past losses, and (ii) by ensuring the efficient management of the operation with the given infrastructure	✓	✓	ANAS	Yes tbd
▪ Improve the service quality to break the circle of low price for bad quality service		✓	ANAS	Yes tbd
Recommendation 6. Consider revising water tariff structure to achieve full cost recovery from all or part of the users while compensating poor and vulnerable households with social transfers				
▪ Undertake a distributional impact assessment to determine the impact of various tariff options	✓		ANAS / MFSI	Yes e.g., IMF, WB
▪ Design and implement a tariff structure that closes as much as possible to gap towards cost recovery		✓	ANAS / ARME	Yes tbd
▪ Mitigate the impact of any price increase for vulnerable and poor households by providing a targeted cash transfer through the social safety net, based on a fully implemented URS		✓	MFSI	Yes tbd

Recommendations /Actions	Short term	Medium term	Responsible Agency	TA need / provider
▪ Develop and implement a communication strategy to effectively communicate the need for reforms in water pricing and how additional revenues are needed to cover the cost of water provision and how they will be used, including to protect the vulnerable and poor	✓	✓	ANAS	Yes tbd
Recommendation 7. Improve coordination of planning within the sector and with other sectors				
▪ Update the forecast for availability from underground and surface water and for water demand for from various sectors and by region for human consumption as well as for agriculture	✓		MAE	Yes LuxDev?
▪ Determine need for desalination and pumping and assess energy needs (volume and timing)	✓		MAE	Yes LuxDev?
▪ Update sectoral plans, i.e., the PLENAS and plan for agriculture and irrigation, (i) to provide a basis for sectoral investment planning and (ii) to share information across sectors, e.g., with the energy sector to ensure availability of needed energy	✓	✓	ANAS / MAE	Yes LuxDev?
Social Safety Net				
Recommendation 8. Strengthen the social safety net to enable the efficient support of poor and vulnerable in the context of energy and water sector reforms, and to prepare for potential support needs due to climate change related challenges				
▪ Complete the implementation of the Unique Social Registry, to achieve 100 percent coverage of households registered, especially to include rural households, which are often poor and vulnerable to climate change implications	✓		MFSI	WB
▪ Ensure the efficient use of public resources in the SSN by reducing the overlaps between the national and municipal level		✓	MFSI	WB?
▪ Use the current structure of the RSI program to design and implement a suitable and stable cash transfer program, financed from additional revenues generated from energy or water price reforms		✓	MFSI	WB?
Disaster Risk Management				
Recommendation 9. Strengthen leadership for DRM to cover and effectively manage the entire DRM cycle				
▪ Assign the role for leading and coordination the DRM efforts to a high-level entity (e.g., at Council of Minister level or under the Prime Minister's Office), potentially together with the responsibility for climate change adaptation policy coordination	✓		Gov	No
▪ Develop and integrate risk prevention, risk mitigation, and disaster recovery in the DRM framework		✓	DRM leader	WB?
Climate change management coordination, information, and governance				
Recommendation 10. Strengthen the institutional framework for managing climate change and design and implement efficient procedures for coordination				
▪ Assign the leadership for driving climate change related policy coordination to a Council of Minister level body (potentially together with DRM)	✓		Gov	No
▪ Introduce procedures that ensure that each stokehold can play his/her role in climate change related policy planning and implementation effectively (e.g., through a coordination mechanism like the one proposed in Annex IV)	✓	✓	CC leader	Yes LuxDev?
▪ Hold government entities accountable for undertaking the coordination effort by requesting them to confirm that sectoral interlinkages are reflected in their respective sectoral plans	✓	✓	CC leader	Yes LuxDev?

Recommendations /Actions	Short term	Medium term	Responsible Agency	TA need / provider
Recommendation 11. Create a common understanding of and awareness for climate change and climate change risks within government				
▪ Create and disseminate information on what impact to expect from climate change to enhance appreciation for need to protect against climate change, i.e., by providing climate scenarios and hazard vulnerability maps	✓		CC leader	Yes LuxDev?
▪ Encourage taking a long-term forward-looking view by aligning risk assessment horizon with the timeframe affected by the decision to be taken (e.g., lifetime of asset)		✓	CC leader	Yes LuxDev?

Annex II. Key Considerations for Communication Throughout a Reform Process

In the context of reforms, **Communication** is an essential instrument for creating awareness, understanding, acceptance and commitment for the change (see Figure A.1)

Figure A.1. Impact of Communication in Change Process

A communication strategy defines the communication means, content and timing based on a needs assessment (see Figure A.2). For this purpose, the needs are assessed on a stakeholder by stakeholder basis by determining (i) the relationship of each stakeholder group (see Figure A.3) towards the reform, (ii) the current attitude of each stakeholder group towards the reform, (iii) the level of influence of each stakeholder group on the reform and thus the risk the failure to take the stakeholder group on board has for the reform (Figure A.4).

Figure A.2. Needs Based Communication Strategy

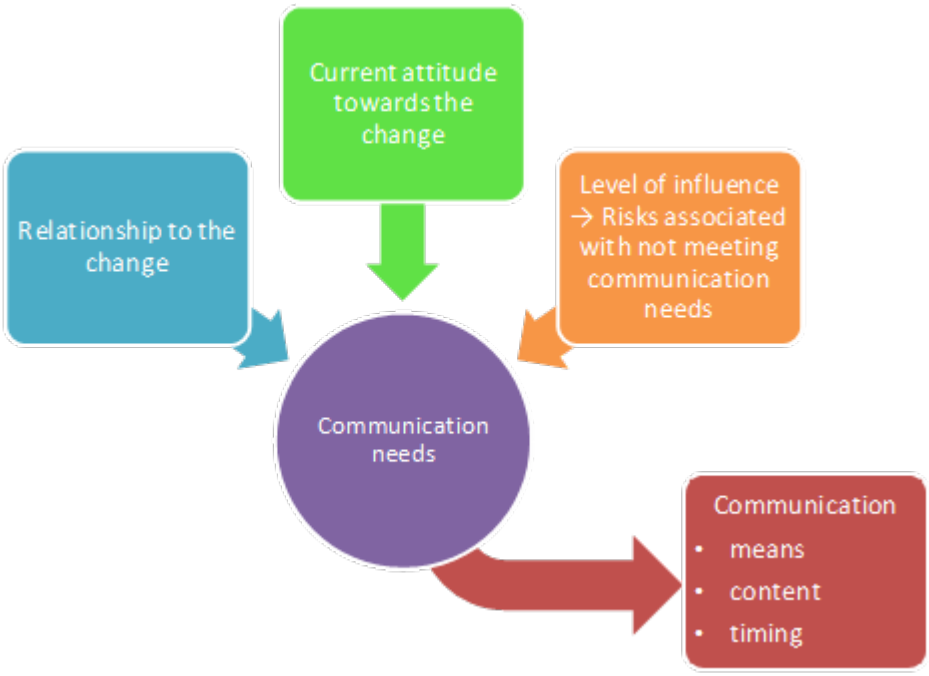


Figure A.3. Definition of Stakeholders for Implementing a Policy Reform

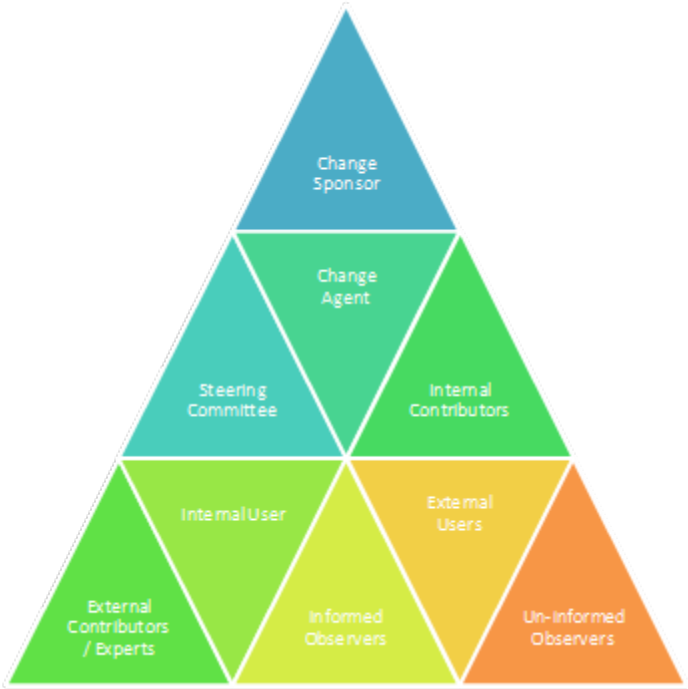
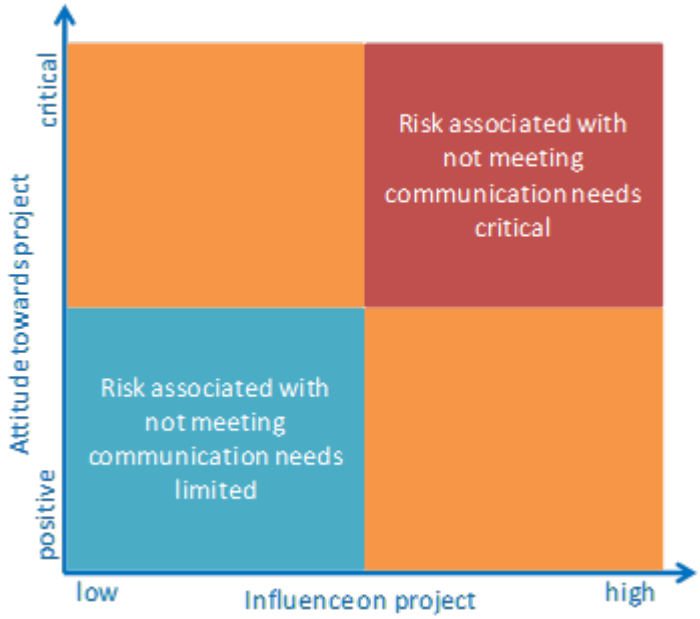


Figure A.4. Risk from Lack of Communication Depending on Attitude and Influence of Stakeholders



In general, the communication in a reform process should follow some essential principles:

- Clearly communicate the reform vision and do it early.
- Outline the benefits and the impact of the reform.

- Ensure the leaders actively communicate throughout the reform process.
- Use multiple channels to communicate the reform and underlying message.
- Provide opportunities for dialogue.
- Repeat the reform messages often.
- Monitor and measure the effect of communications.

Annex III. Example for How to Mainstream Climate-Related Tasks into Processes and Decision Making

	Project / Activity Manager (line ministry / supervising ministry)	Ministry of Agriculture and Environment (could be NCC)	MoF
Project proposal	Prepare and submits project proposal to MoF and MAA.	Preliminary view on climate impact and climate vulnerability of project	Assess whether the proposed project is expected to be viable and affordable.
		MAA provide opinion on climate sustainability	**Finance Minister provide opinion on project based on review**
Project Preparation Period	Prepare and submit feasibility study and a project appraisal to the MoF. Preparing climate impact and climate vulnerability assessment as part of the project appraisal and sending it for approval to MAA.	Review of project proposal for climate sustainability	Review project appraisal and feasibility studies and assesses viability and affordability of the project. Unless there is a reason to believe that a project is not viable or unaffordable, the project proposed to be included in the list of projects that can be proposed for inclusion in budget.
		MAA provide recommendation/objection of project for climate sustainability	**Minister approves / rejects project for inclusion in the pipeline**
Allocating funding for project	Include projects from the pipeline list in budget proposal based on sectoral priorities, and sectoral climate commitments/intentions.	Review of sectoral budgets for climate sustainability	Review sectoral budgets to ensure alignment with sectoral policy, with long-term fiscal sustainability, and that PPPs do not undermine long-term sustainability (breach PPP ceilings where these exist).
		MAA provide recommendation/objection of sectoral budget proposals for consistency with climate sustainability	**Minister approves / rejects project to be included in budget proposal**
Council of Ministers approves activity or projects for example as part of the budget proposal			

Annex IV. Example for Reporting on Cross Sectoral Coordination as Part of Climate-Related Planning Processes

Impact other sectors reported on the activity (needs to be reflected in sectoral activity)		Sectoral activity	Impact of the activity reported to other sectors (needs to be reflected in the activity of other sectors)	
Sector that reported	**Reported impact**		**Sector to which reported**	**Reported impact**

The table would be filled in by every sector confirming that they reported on linkages to other sectors and took into account implications from other sectors.

The entity coordinating the planning process would ensure that everything reported by other sectors on the right-hand side of the table is considered on the left-hand side of the table by the respective sectors. This consistency check would quickly reveal any important coordination gaps.