Appendix B
BESS São Vicente - In-Country Diagnosis: Environmental, Social and Climate Change

Cabeolica SA

Date: 14 November 2024

Advisian
Worley Group

advisian.com

Table of Contents

1 Environmental Context 5

1.1 Climatic characteristics of Cabo Verde 5

1.1.1 Temperature 5

1.1.2 Winds 5

1.1.3 Humidity 6

1.1.4 Cloud cover 6

1.1.5 Precipitation 6

1.2 Physical environment 7

1.2.1 Topography 7

1.2.2 Hydrology and groundwater 7

1.2.3 Geology and soils 7

1.2.4 Air quality 8

1.3 Biological environment 8

1.3.1 Flora and vegetation 9

1.3.2 Fauna 9

1.3.3 Protected areas 10

2 Social Context 12

2.1 Population 12

2.2 Health 12

2.3 Economy 13

2.4 Education 14

2.5 Infrastructure 15

2.6 Waste management 17

2.7 Land use 18

2.8 Human Rights 19

2.9 Gender profile 19

2.9.2 Gender-based conflicts 22

2.9.3 Vulnerable communities 23
2.9.4 Labour Conditions 23
3 Climate Change Issues 27
3.1 Climate vulnerabilities 27
3.2 Climate hazards 28

Table list

Table 1-1 Average annual temperatures (ºC) measured in Cabo Verde (2010-2016) 5
Table 1-2 Total annual rainfall (mm) in Cabo Verde (2010-2016) 6
Table 1-3 Evolution of Direct GHG emissions in Cabo Verde 8
Table 1-4 Evolution of Indirect GHG emissions in Cabo Verde 8
Table 1-5 Endemic terrestrial species in Cabo Verde 9
Table 2-1 Resident population in Cabo Verde, 2022 12
Table 2-2 Health infrastructure in Cabo Verde 12
Table 2-3 Healthcare workers per 10,000 inhabitants, Cabo Verde, 2016 13
Table 2-4 Ratio of HIV and tuberculosis in Cabo Verde 13
Table 2-5 Labour activity level by gender of Cabo Verde population, 2021 14
Table 2-6 Employment rates by gender and age interval 14
Table 2-7 Education levels in Cabo Verde by Gender (population > 4 years old) 15
Table 2-8 Access to energy for illumination and food preparation in Cabo Verde, 2022 16
Table 2-9 Access to water for human consumption, 2022 17
Table 2-10 Wastewater collection in Cabo Verde, 2022 17
Table 2-11 Percentage of population according to waste disposal method, 2022 18
Table 2-12 Land use categories in Cabo Verde, 2012 18
Table 2-13 Employment by sector and occupation by gender, 2018 21
Table 2-14 Child employment and education 24

Figure list

Figure 2-1 Population with access to electricity, 2015-2022 16
Figure 2-2 Unemployment rate 2015-16 by gender and region 20

Figure 2-3 Labour Market Participation Rate 2015-16 by gender and region 21
Figure 3-1 Climate indicators for the period 2011-2040 28
Figure 3-2 Disaster Risk Profile of Cabo Verde 28

1 Environmental Context

1.1 Climatic characteristics of Cabo Verde

Due to its geographical position in the northernmost part of the Sahelian zone, Cabo Verde has a semi-arid to arid climate that is tempered by oceanic influences. This zone is subject to alternating influences of the northeast trade winds from October to June, and the monsoons bring unpredictable though abundant rains from July/August to September/October. Regular and strong trade winds (often exceeding 9.0 m/s at 50 m above ground level) are considered excellent to produce wind energy.

The maritime Sahelian climate includes microclimates due to the junction of three air currents that are strongly influenced by the topographic relief of the archipelago:

- Northeast current: Blows most of the year and characterized by cool temperatures,
- Current from the African continent: Hot and dry winds from the Sahara Desert that are characterized by significant dryness and high volumes of suspended dust, and
- End of Summer current: Hot and humid, marking the rainy period.

Fog often settles on the peaks of the islands where higher precipitation occurs, and localized climates are influenced by exposure to winds from mountain slopes. The most arid areas have southwest exposure, and the maritime influence results in frequent occult precipitation (condensation of mist and fog on foliage).

1.1.1 Temperature

Temperatures are generally moderate due to maritime influences. Annual averages vary between 23ºC and 27ºC. The hottest period occurs between August and October, while the coolest is from January to April. Temperature variations between day and night are small. During the hot season, Praia Port (Santiago) has particularly high temperatures, such as in the ports of Furna (Brava), Tarrafal de São Nicolau, and Tarrafal de Santo Antão. The average annual temperatures measured by meteorological stations in Cabo Verde from 2010 to 2016 are compared in Table 1-1.

Table 1-1 Average annual temperatures (ºC) measured in Cabo Verde (2010-2016)

Meteorological Stations	2010	2011	2012	2013	2014	2015	2016
Aeroporto da Praia	25.4	24.7	24.4	24.5	24.1	24.4	25.1
Porto Novo	25.6	24.9	24.7	24.8	24.5	24.6	25.0
Mindelo	25.1	24.7	24.0	24.4	23.8	23.9	24.4
Aeroporto de S. Pedro	25.0	24.3	24.1	24.6	24.5	24.4	24.8
Aeroporto do Sal	24.1	24.1	23.9	24.0	23.2	23.3	24.1
Aeroporto de Rabil	25.5	24.8	24.3	24.4	23.8	24.2	24.2
Aeródromo de S. Filipe	25.9	24.8	24.5	25.3	24.0	23.9	26.5
Mosteiros	26.3	25.6	25.2	24.8	23.9	24.0	24.6

Estatisticas do ambiente, 2016

1.1.2 Winds

The Archipelago is dominated by the Northeast Trade Winds, which are strongest from December to May. Winds are lighter from July to November, usually coming from the Northeast, but sometimes coming from the Southeast and South (and to a lesser extent from the Southwest), and accompanied by

thunderstorms and rain with strong winds, or blowing weakly from the Southeast, South or Southwest for a few days or for just a few hours at any time. It is frequent to have "*Kalemas*" (wave swells) from the Southeast or South, mainly at the southern leeward islands.

1.1.3 Humidity

Although the climate is generally dry, higher relative humidity is measured in various interior and high-altitude locations of the islands Santo Antão, São Nicolau, Fogo, and Brava. Sometimes, particularly on the islands of Sal and Santiago, marked nocturnal humidity and mist occurs. The lowest humidity levels are measured during the Harmattan wind. Based on the measurements taken at Praia from 1921 to 1930 and 1941 to 1950, the monthly averages of daily measurements taken at 09:00, 15:00 and 21:00 indicate a minimum humidity level in March, (52.5% at 15:00) and a maximum in September (79.4% at 21:00).

1.1.4 Cloud cover

Cloud cover is generally greatest from July to January. On average, approximately half the sky has cloud cover. The predominant clouds are stratocumulus, between 600 m and 1500 m in width, from October to April. During the rainy season, cumulonimbus clouds, as well as altocumulus and cirrus clouds appear. During the Winter, horizontal and vertical clouds develop.

1.1.5 Precipitation

The Sahel-Sudan climate region is a vast arid zone that extends eastward to the Red Sea with annual precipitation that does not exceed 300mm on average, normally distributed from July to September. The total annual rainfalls measured at Cabo Verde meteorological stations from 2010 to 2016 are compared in Table 1-2.

The rainy season is August to October in the north of the archipelago and August to November in the south. During some years, more significant precipitation occurs in November or December in the north and in July or December in the south. When the Intertropical Convergence Zone remains too far from the archipelago and the rain-bearing air mass of the South Atlantic Monsoon does not reach the islands, precipitation is practically zero. This happens most frequently at the windward group of islands.

Rainfall is concentrated in a short, wet season between August and October, with torrential rainfall during a limited number of days. In general, major rainfalls are associated with monsoons, dominated by wind from the south to southwest.

Table 1-2 Total annual rainfall (mm) in Cabo Verde (2010-2016)

Meteorological stations	2010	2011	2012	2013	2014	2015	2016
Aeroporto da Praia	349.2	190.3	289.8	410.3	139.4	336.9	232.2
Mindelo	302.0	259.9	150.8	224.8	78.9	73.6	233.6
Aeroporto do Sal	112.5	39.7	152.5	86.2	96.1	119.5	114.4
Mosteiros	502.1	552.3	287.2	614.7	133.1	633.8	449.6

Estatisticas do ambiente, 2016

1.2 Physical environment

The Cabo Verde archipelago is between the Equator and the Tropic of Cancer, between parallels 17º 12' and 14º 48' North latitude and meridians, and 22º44' and 25º22º West longitude. The country comprises ten (10) islands, divided into the following two groups by their location relative to the prevailing winds, and several uninhabited islets:

- The Barlavento (windward) group to the north: Santo Antão, São Vicente, Santa Luzia (uninhabited), São Nicolau, Sal, and Boa Vista.
- The Sotavento (leeward) group to the south: Maio, Santiago, Fogo, and Brava.

These islands occupy a total land area of 4,033 km^2 and 734,000 km^2 of Exclusive Economic Zone (EEZ). The coastline is relatively long with approximately 1.200 km of white and black sand beaches, alternated with cliffs.[1]

1.2.1 Topography

Cabo Verde islands are of volcanic origin with generally uneven topography, such as steep, deep, and ramified valleys. The terrain in Cabo Verde is a combination of dry plains and highly active volcanoes. In general, the eastern islands are more level, and the western islands are more mountainous with cliffs that rise steeply from the ocean.

The highest point of the Archipelago is Mount Fogo (2,829 m), which is an active stratovolcano on Fogo Island. Peaks on Santo Antão and São Tiago reach 1,979 m and 1,392 m, respectively. All but three of the islands are mountainous, with prominent cliffs and deep ravines. High ground and southwestern slopes support lush vegetation due to condensation.

1.2.2 Hydrology and groundwater

Cabo Verde has a limited number of permanent watercourses, except springs on Santo Antão that provide an appreciable flow year-round. Weather and geomorphological conditions result in watercourses in the valleys that only flow during the rainy season.

Cabo Verde has an almost total dependence on groundwater for domestic and agricultural use. Ground and superficial water resources are scarce as they depend on the erratic rainfall.[2]

1.2.3 Geology and soils

Cabo Verde is west of the Magnetic Quiet Zone in the middle of the African oceanic lithosphere, dated at 142 and 115 million years, respectively. There is consensus in the geological literature that the formation of the Cabo Verde archipelago is associated with a mantle plume, and the islands are the surface expression of a deep hotspot that has intermittently affected the African plate as it expanded to the east. Recent (historical and present-day) volcanic activity in the Fogo stratovolcano (e.g., 1951 and 1995) and the seismic activity on Fogo and Brava indicate that the geological processes remain active. The geology of Santiago is relatively complex. The rocks found on the island are essentially volcanic;

[1] Republic of Cabo Verde. Third National Communication on Climate Change, UNFCCC, 2017.
[2] Baptista, I. *et al.*, Soil and water conservation strategies in Cabo Verde and their impacts on livelihoods: an overview from the Ribeira Seca watershed, 2015.

however, terrestrial, and marine sediments occupy relatively extensive areas with limited volumes compared to that of the igneous formations.

Soils are mainly of volcanic origin, medium to coarse textured, steep, low in organic matter and generally shallow. Although they are naturally fertile due to their volcanic origin, fertility has decreasing over time due to water erosion, weak vegetation soil, and continuous use without proper replenishment of nutrients extracted by crops.

1.2.4 Air quality

Air quality is relatively good. The sources of air pollution in the country are dust from the Sahara Desert (dominant), and road traffic emissions (increased over the past decade). Direct and indirect greenhouse gas (GHG) emissions in Cabo Verde, estimated for 1995, 2000, 2005 and 2010 in gigagrams (Gg) and tonnes (T), are listed in Table 1-3 (direct GHG levels) and Table 1-4 (indirect GHG levels).

Table 1-3 Evolution of Direct GHG emissions in Cabo Verde

Gases	1995	2000	2005	2010
Carbon dioxide (CO_2), Gg	23.46	58.57	297.40	293.84
Methane (CH_4), Gg	3.98	3.89	4.50	5.71
Nitrous oxide (N_2O), Gg	0.19	0.20	0.19	0.26
Hydrofluorocarbons (HFC), T	Not estimated	0.10	0.59	1.91

Estatisticas do ambiente, 2016

Table 1-4 Evolution of Indirect GHG emissions in Cabo Verde

Gases	1995	2000	2005	2010
Sulphur oxide (SO_2), Gg	0.00	0.00	-	-
Nitrogen oxides (NO_X), Gg	2.22	2.61	4.09	3.62
Non-Metallic Volatile Organic Compounds (COVNM), Gg	2.60	2.70	3.68	4.03
Carbon monoxide (CO), Gg	32.00	30.94	36.66	32.57
Sulphur oxides (SO_X), Gg	0.00	0.00	-	-

Estatisticas do ambiente, 2016

1.3 Biological environment

Despite being a small island state with ecologically fragile natural resources, Cabo Verde hosts a wide range of ecosystems in terms of topographic and climatic diversity. Depending on the climatic zone, relief and exposure, four bioclimatic zones are present: i) arid zone on the coast between 0-200 m altitude, of desert type with vegetation xerophytes, ii) semi-arid zone between 200-400 m above sea level (masl) with more diversified natural vegetation, iii) sub-humid zone between 400-600 masl with several species of woody shrubs and trees distributed across agricultural fields, and iv) wetland above 700 masl, which is the most productive area in terms of agricultural and fodder production.

Natural vegetation is rare, especially in arid and low regions; however, herbaceous plants cover high areas during the rainy season. The biological environment determines land use by local communities.

Cabo Verde has a relatively rich biodiversity with more than 5000 species in both terrestrial and marine environments[3], and high endemism, as listed in Table 1-5 for 2005 and 2016.

Table 1-5 Endemic terrestrial species in Cabo Verde

Taxonomic group	2005	2016
FUNGUS	0	0
LICHENS	8	8
PLANTS:	72	74
• Spermatophytes	65	67
• Bryophytes	6	6
• Pteridophytes	1	1
ANIMALS:	460	471
• Arthropods	435	435
• Chordates	15	26
• Molluscs	10	10
TOTAL	**500**	**553**

Estatisticas do ambiente, 2016

1.3.1 Flora and vegetation

The Cabo Verde archipelago was initially an area without vegetation due to volcanic activity. Many seeds were introduced from West Africa, Latin America, the Mediterranean region, and the other Macaronesia islands (Azores, Canaries and Madeira) through the ocean current, by birds, human travel, and the wind.

The different types of soils and climate conditions on Cabo Verde have resulted in flora rich in species. The very dry eastern islands, where palm trees and acacias can be found along the coastal areas, are home to many species of grasses.

Many plants have adapted through the centuries to the conditions on Cabo Verde to the extent that completely new species have emerged, some of which are endemic. There are approximately 800 plant species in Cabo Verde, including 114 endemic species and subspecies[4], one of which is a forest subspecies (*Sideroxylon marmulano*).

Most endemic plants (78%) are threatened (29.3% Critically Endangered, 41.3% Endangered, and 7.6% Vulnerable), most of which have limited geographical range, and half of which have <20 km^2 of Areas of Occupancy and <200 km^2 of Extents of Occurrence.[5]

1.3.2 Fauna

To date, 3512 terrestrial species have been inventoried on Cabo Verde, of which approximately 20% are included on the IUCN Red List. Cabo Verde fauna include the largest number of endemic and

[3] Republic of Cabo Verde. Third National Communication on Climate Change, UNFCCC, 2017.
[4] Hansen and Sunding, 1993. Flora of Macaronesia. Checklist of vascular plants, 4, revised edition. Sommerfeltia.
[5] Romeiras, *et al.*, IUCN Red List assessment of the Cabo Verde endemic flora: towards a global strategy for plant conservation in Macaronesia, 2015.

endangered species[6], and about 50 species of breeding birds inhabit in the wetlands throughout the year. Endemic species include the Raza Island lark (*Alauda razae*), the Cabo Verde Swift (Andorinhaão) *(Apus alexandri)*, and the Cabo Verde Swamp-warbler (*Acrocephalus brevipennis)*.

Birds of prey include the peregrine falcon (*Falco peregrinus madens*), the Eurasian buzzard (*Buteo buteo bannermani*), the Egyptian vulture (*Neophron percnopterus*), the kestrel (Falcão) (*Falco tinnunculus alexandri*), and the osprey (*Pandion haliaetus)*.

Several migratory birds visit the islands, including herons (*Ardea purpurea bournei*), some species of plovers (e.g., Black-bellied plover (*Pluvialis squatarola*), American golden-plover (*Pluvialis dominica*), spoonbill (*Platalea leucorodia*), a variety of swallows (e.g., barn swallow (*Hirundo rustica*) and red-rumped swallow (*Cecropis daurica*)), and African broad-billed roller (*Eurystomus glaucurus*).

The only land mammal native to the Cabo Verde archipelago is the grey long-eared bat (*Plecotus austriacus*). Feral goats, rodents (e.g., house mouse (*Mus musculus*)), and monkey (green monkey *Chlorocebus sabaeus*) were introduced by humans.

Twenty-three (23) native species of reptiles, all endemic to the archipelago, and some single-island endemics[7] are found in Cabo Verde, including including the gecko *Tarentola caboverdiana substitutea*, *Hemidactylus bouvieri*, *Tarentola raziana*, *Tarentola* gigas, lizards such as *Chioninia stangeri* and the emblematic giant lizard *Chioninia coctei*.

1.3.3 Protected areas

Cabo Verde established a national system of terrestrial protected areas (PAs) and marine and coastal protected areas (MPAs) in 2003 by the Decree-Law 3/2003 on Protected Areas Management.

Current Protected Areas consist of 47 sites:[8]

- 21 PAs covering 26,437 hectares, or 6.6% of Cabo Verde land surface, including the Natural Parks of *Serra Malagueta* (Santiago Island) and Monte Verde (São Vicente Island), the Natural Monument of Rochar Estancia (Boa Vista Island), and the Protected Landscape of *Monte Caçador e Pico Forcado* (Boa Vista Island), and
- 26 MPAs – 25 marine and coastal units and 1 exclusively marine unit - covering 40,245 hectares, including the Protected Landscape of *Salinas Pedra Lume e Cagarral* (Sal Island), the Natural Reserve of Costa de Fragata (Sal Island), and three Integrated Natural Reserves in Boa Vista (*Ilhèu de Baluarte, Ilhéu dos Passaros*, and *Ilhéu de Curral Velho*).

Four sites are designated as Wetlands of International Importance under the Ramsar Convention:[9]

- Curral Velho (Boa Vista Island), which is nationally categorized as a Protected Landscape and Natural Reserve area,
- Lagoa de Pedra Badejo (Santiago Island),

[6] Cabo Verde – Main details about biodiversity facts. Status and trends of biodiversity, including benefits from biodiversity and ecosystem services. www.cbd.int

[7] Vasconcelos R, Brito JC, Carranza S, Harris DJ (2013). Review of the distribution and conservation status of the terrestrial reptiles of the Cabo Verde Islands. Oryx, 47: 77-87. https://doi.org/10.1017/S0030605311001438

[8] UNDP Project Document, Consolidation of Cape Verde's Protected Areas System and UNEP-WCMC (2024). Protected Area Profile for Cabo Verde from the World Database on Protected Areas, April 2024. Available at: www.protectedplanet.net

[9] RAMSAR webpage: https://rsis.ramsar.org

- Salinas of the English Port (Maio Island), protected under national jurisdiction as Protected Landscape, and
- Lagoa de Rabil (Boa Vista Island), which is part of the Boa Esperança Nature Reserve.

Apart from Ramsar sites, no other international protected areas category is recognized in Cabo Verde.

2 Social Context

2.1 Population

Cabo Verde has an approximate population of 506,595 inhabitants[10] in urban (75.3%) and rural areas (24.7%). The resident population by gender is exposed in Table 2-1. The population is mainly concentrated in Praia in Santiago (approximately 30%). Demographic projections made by INE (National Statistics Institute) for the year 2030 indicate a population of 528,657 and for the year 2040 a population of 560,359[11].

Table 2-1 Resident population in Cabo Verde, 2022

Population	Male	Female	Total
Cabo Verde	254,803 (50.3%)	251,792 (49.7%)	506,595

Cabo Verde Census Page

2.2 Health

Public health services of the types listed in Table 2-2 are organized at the following three levels:

- Local (municipalities): 17 health delegations on 9 islands plus base health units, health stations, reproductive health centres, and health centres.
- Regional: 4 regional hospitals (Riberira Grande do Santo Antão, Sal, Santa Catarina, and São Filipe).
- National: 2 central hospitals (Praia and São Vicente).

Table 2-2 Health infrastructure in Cabo Verde

Health infrastructure	Number
Central Hospital	2
Regional Hospital	4
Health Centre	33
Reproductive Health Centre	5
Health Station	34
Base Health Unit	115
Health Delegation	17

Anuário Estatístico 2020, INE Cabo Verde

The numbers of doctors and nurses have increased annually. The ratios of doctors and nurses per 10,000 Cabo Verde inhabitants are summarised in Table 2-3.

[10] INE Cabo Verde. Condiçoes de vida dos agregados familiares - 2022, accesible at https:// ine.cv
[11] INE Cabo Verde. Projeções demográficas da população por concelho e idade simples - 2010-2040, 2023.

Table 2-3 Healthcare workers per 10,000 inhabitants, Cabo Verde, 2016

Healthcare Worker	Number	Per 10,000 inhabitants
Doctors	408	7.68
Nurses	690	12.99

Anuário Estatístico 2020, INE Cabo Verde

Health coverage is approximately 89% for the population living within a 1-hour walk of available services. Although the country has made substantial progress regarding health, improvements are required in terms of vector-borne diseases, such as Zika virus, poverty reduction, and reduced incidences of malnourished children.

Births in the national territory in 2021 totalled 7632[12], more than half of which (55.0%) took place in the municipalities of Praia (34.2%), São Vicente (13.7%), and Sal (7.1%). The remaining 45% occurred in other municipalities.

The prevalence of HIV/AIDS in the population was approximately 0.61 per 100,000 inhabitants in 2020, and tuberculosis is a continued public health problem, estimated in 2021 to be 33.5 per 100,000 inhabitants. The estimated prevalence of HIV/Aids infections and incidences of tuberculosis from 2015 to 2020 are compared in Table 2-4. Conversely, malaria has low endemicity.

Table 2-4 Ratio of HIV and tuberculosis in Cabo Verde

Infection	Incidence per 100,000 inhabitants					
Year	2015	2016	2017	2018	2019	2020
HIV infection (new cases)	0.75	0.90	0.89	0.92	0.62	0.61
Tuberculosis (incidence per 100 000 pp)	50.3	45.0	47.2	36.6	28.6	30.1

Anuário Estatístico 2022, INE Cabo Verde

2.3 Economy

Cabo Verde's economy is characterized by strong external dependence, fragility of the agricultural sector, weak development of industry, and dominance of trade, transport, tourism, and construction sectors and civil and public administration services.

The share of the tertiary sector in GDP is approximately 70%. Contributions from primary and secondary sectors represent 10% and 20%, respectively. Primary sector activities are essentially agriculture, fishing, and to a lesser extent livestock breeding. Forestry activities are marginal. Although its share of GDP is low, agriculture provides around 45% of jobs and is the main source of income for around 40% of the active population. Agriculture is characterized by low useful surface area (10% of surface area), arid volcanic soil, and recurrent droughts. Fishing, which has a potential production estimated at 45,000 tonnes per year, is underexploited. It represents less than 1% of GDP, but 25% of exports of goods. The secondary sector includes construction, energy and water production and light processing industries such as beverages, food products, and clothing from imported raw materials.

[12] INE Cabo Verde. Estatísticas Vitais. Nascimentos, óbitos e casamentos 2021.

Poverty remains an issue in rural areas (40.9%) compared to urban areas (15%). Women are more affected than men by unemployment (+9%) and inactivity (+14%). Labour force data by gender for Cabo Verde are provided in Table 2-5, and employment rates by age range are listed in Table 2-6.

Table 2-5 Labour activity level by gender of Cabo Verde population, 2021

Gender	TOTAL		Employed		Unemployed		Inactive	
	Number	%	Number	%	Number	%	Number	%
TOTAL	399,074	100	199,803	100	18,101	100	181,170	100
MALE	199,719	50.05	113,988	57.05	8,194	45.27	77,537	42.80
FEMALE	199,355	49.5	85,815	42.95	9,907	54.73	103,633	57.20

Cabo Verde Census Page (https:// ine.cv/censo-2021)

Table 2-6 Employment rates by gender and age interval

Age Range (years)	Male		Female	
	Number	%	Number	%
10-14	362	0.30	120	0.13
15-19	4,043	3.31	1,956	2.04
20-24	13,233	10.83	9,139	9.55
25-29	18,566	15.20	15,478	16.17
30-34	19,823	16.22	16,702	17.45
35-39	17,219	14.09	14,407	15.05
40-44	14,045	11.50	11,271	11.77
45-49	10,789	8.83	8,289	8.66
50-54	9,419	7.71	7,371	7.70
55-59	7,627	6.24	5,809	6.07
60-64	4,533	3.71	3,116	3.26
+65	2,523	2.06	2,064	2.16
TOTAL	**1,221,982**	**100**	**95,722**	**100**

Cabo Verde Census Page (https:// ine.cv/censo-2021)

2.4 Education

Adult literacy is 83% for women and 92.4% for men, with a larger gender discrepancy in rural areas where the literacy rate is only 74.7% for women compared to 87.9% for men. Among those aged 15-24, the gender parity persists in rural areas, and the literacy rate is 97% overall.[13]

In 2022, 129,513 children were enrolled in education: 16,000 in pre-school, 82,707 in compulsory basic education (with a net enrolment rate of 94%), and 30,806 in secondary school. Gender parity occurs in preschool access, while slightly fewer girls (48%) than boys (52%) enrolled in compulsory basic

[13] INE Cabo Verde. Condiçoes de vida dos agregados familiares - 2022, accesible at https:// ine.cv

education. In secondary education, the situation is reversed with 54% girls. The education levels of inhabitants older than 4 years by gender are listed in Table 2-7.

Table 2-7 Education levels in Cabo Verde by Gender (population > 4 years old)

Cabo Verde Education Level	Distribution by Gender	
	Male %	Female %
None	4.2	10.5
Preschool	4.6	4.0
Literacy	1.5	2.1
Elementary	43.6	41.9
Secondary	41.6	39.7
High school	0.4	0.8
University	8.3	11.5

INE Cabo Verde. Condições de vida dos agregados familiares – 2022, accesible at https:// ine.cv

2.5 Infrastructure

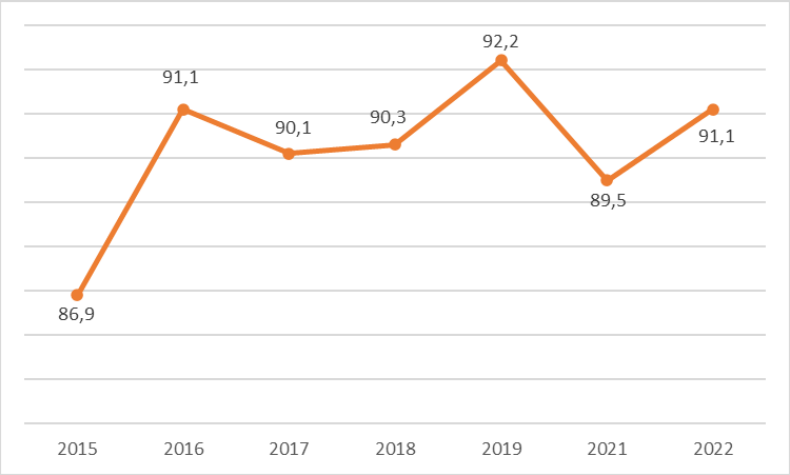
The energy and water subsector experiences significant deficits. The country has few primary energy resources, apart from renewable energy, notably solar and wind. Thermal power plants produce 86% of the country's electricity with high dependency on imported petroleum products, which account for 82.5% of total energy consumption. This dependency is increasing with increased demand, growing at 8.1% per year.

The installed power capacity increased from 82.3 MW in 2010 to 205 MW in 2022. The distribution and density of Cabo Verde's population across the islands creates serious obstacles to the development of the electricity subsector. The country is unable to have a single centralized electricity system, necessitating the installation of production capacities on several islands.

Obsolescence and inefficiencies in electrical installations result in high losses in distribution. Demand for wood fuels (firewood, charcoal, and biomass) is high as the main primary energy source for national production, along with wind energy, which has taken on considerable prominence since 1995. Seawater desalination, which relies heavily on electricity, is the main source of drinking water give the country's aridity.

Not all the population of the archipelago has access to electricity. In 2022, the percentage of the population with access to electricity was 91.1%. The trend in access from 2015 to 2022 is graphed in Figure 2-1 (information of the year 2020 is not available).

Figure 2-1 Population with access to electricity, 2015-2022



INE, Estatísticas das Familias e Condições de Vida. Inquérito Multi-Objectivo Contìnuo, 2019 + Condições de vida dos agregados familiares – 2022

In 2022, approximately 92.1% of the urban population had access to electricity, while about 87.5% of rural populations had access, as summarized in Table 2-8. The female population had slightly greater access to electricity, reaching 92.1% compared to 89.8% for males. Access to energy for lighting and food preparation, broken down by urban and rural populations, is summarized in Table 2-8.

Table 2-8 Access to energy for illumination and food preparation in Cabo Verde, 2022

Energy source	Cabo Verde Population (%)		
	Total	Urban	Rural
Energy for illumination			
Electricity	92.3	92.9	90.7
Candles	6.1	5.6	7.8
Oil	0.2	0.2	0.2
Gas	0.0	0.1	0.0
Others	1.3	1.3	1.3
Energy for food preparation			
Gas	78.8	90.3	43.8
Firewood / Wood	20.0	8.5	54.9
No preparation	0.4	0.3	0.8
Electricity	0.7	0.8	0.4
Coal	0.1	0.0	0.2
Others	0.0	0.0	0.1

INE, Condições de vida dos agregados familiares – 2022

Water distribution for human consumption has improved significantly in terms of the supply of potable water; however, the level of service and the overall coverage rate are still far below what is necessary for a significant fraction of the population that does not have regular access to a supply of water.

Access to potable water through an improved water source has increased over the years, mainly through the public distribution network, which is the main source of drinking water. Approximately 94.8% of the

population has access to an improved source, with 71.5% having access to the public water distribution network as their main source, as noted in Table 2-9 for 2022.

The coverage of the public distribution network remains insufficient, and the public springs do not satisfy current needs, making increased use of water tanker trucks an urgent necessity to supply mainly rural areas.

Table 2-9 Access to water for human consumption, 2022

Water Source	Cabo Verde Population (%)		
	Total	Urban	Rural
Public Network	71.5	75.8	58.2
Neighbours	7.8	8.9	4.5
Water tankers	10.9	10.1	13.4
Public spring	5.8	4.6	9.6
Other sources of water	4.0	0.6	14.3

INE, Condições de vida dos agregados familiares – 2022

Insufficient wastewater collection is a significant problem at both local and national levels, as reflected by the distribution of sewage disposal systems between urban and rural areas of Cabo Verde in 2022 provided in Table 2-10.

Table 2-10 Wastewater collection in Cabo Verde, 2022

Sewage Disposal Method	Cabo Verde Population (%)		
	Total	Urban	Rural
Septic Tank	54.3	49.0	70.5
Public Sewer Network	31.1	40.2	3.4
Rudimentary Septic Tank	1.0	1.3	0.4
Ditch	0.0	0.0	0.0
Nature (sea, land, others)	0.0	0.0	0.0
Others	0.8	1.0	0.0

INE, Condições de vida dos agregados familiares – 2022

2.6 Waste management

Around 70.6% of the Cabo Verde population use containers as the main waste management method, and 15.6% use the garbage collection service. Although these methods are currently adequate, 9.3% of the population continue to burn and/or bury garbage, and 3.5% dispose of it to the environment. A smaller fraction of the population disposes garbage in the immediate surroundings (0.9%). In urban areas, most of the population uses containers (78.5%), while in rural areas containers are used by 46.3% of the population, as summarized in Table 2-11.

Table 2-11 Percentage of population according to waste disposal method, 2022

Cabo Verde Population	Waste Disposal Method					
	Containers	Collection service	Burn and/or bury	Disposal to environment	Disposal to surroundings	Other methods
TOTAL (%)	70.6	15.6	9.3	3.5	0.9	0.1
Urban (%)	78.5	17.4	2.5	1.3	0.3	0.0
Rural (%)	46.3	10.2	30.0	10.5	2.9	0.2

INE, Condições de vida dos agregados familiares – 2022

2.7 Land use

On the islands of Santiago, Santo Antão, Fogo, and Sau Nicolau, agricultural activity is practiced on a larger scale. More than 90% the arable surface (41,000 ha) is used for rain-fed agriculture, while about 5% is used for irrigated agriculture. About the 23% of the country's surface is forested (Table 2-12).

Severe land degradation occurs across the country in different ways and to different extents according to the physical characteristics of the islands. To prevent land degradation and to enable agricultural production, both structural and biological soil and water conservation and water harvesting measures have been implemented on a vast scale.

Table 2-12 Land use categories in Cabo Verde, 2012[14]

Land use	Total area (ha)	Total area (%)
TOTAL	**398,500.00**	**100.0**
Forest	43,617.13	10.9
Open forest formation	11,302.31	2.8
Agroforestry zones	13,462.11	3.4
Another heterogeneous agricultural zone	1,728.97	0.4
Shrub areas	21,521.56	5.4
Tree-lined urban area (parks, alleys, gardens)	776.72	0.2
Wetlands	1,307.71	0.3
Water bodies	857.96	0.2
Area with herbaceous vegetation	50,334.88	12.6
Area without vegetation or sparse vegetation	207,311.26	52.1
Another artificial zones	9,014.80	2.3
Another agricultural zone	37,040.95	9.3
Another artificial zone with vegetation	223.65	0.1

Estatísticas do ambiente, 2016

[14] The classification system of land uses is based on FAO Global Assessment of Forest Resources classification system (2005) adapted to Cabo Verdean characteristics.

2.8 Human Rights

The Republic of Cabo Verde is a parliamentary representative democratic republic largely modelled on the Portuguese system. Constitutional powers are shared between the head of state and the head of government.

The national Police, under the Ministry of Internal Affairs, is responsible for law enforcement., the Judicial Police, under the Ministry of Justice, is responsible for major investigations, and Civilian authorities maintained effective control over the security forces.

The assessment of the human rights in Cabo Verde, according to 2022 Country Reports on Human Rights Practices (U.S. Department of State, Bureau of Democracy, Human Rights and Labour), is summarised below:

- Regarding torture and other cruel, inhuman, or degrading treating or punishment, the constitution and law prohibit such practices.
- Although the government has taken steps to improve prison conditions in some areas, they remain deficient due to overcrowding and inadequate health and sanitary conditions. Women generally have more space per person and better sanitary conditions.
- The constitution and law prohibit arbitrary arrest and detention and provide for the right of any person to challenge the lawfulness of his/her arrest or detention in court.
- The constitution and law provide for freedom of expression, including for members of the press and other media, and the government generally respected this right. Also, internet has no restrictions or disrupt access, neither censor online content.
- The law provides criminal penalties for corruption by officials, and the government generally implemented the law effectively.
- Domestic and international human rights groups generally operated without government restrictions investigating and publishing their findings on human rights cases. Government officials were often cooperative.

  The National Commission for Human Rights works on all nine inhabited islands to protect, promote, and reinforce human rights, rights of citizenship, and international humanitarian law and raises the profile of human rights topics in public media and discussion.
- The constitution provides protections against racial discrimination and upholds the rights of immigrants and foreigners. In addition, the law prohibits discrimination in employment and criminalizes activities that incite racial discrimination, hatred, or violence.

2.9 Gender profile

According to the 2018 gender profile measured in Cabo Verde by the UN[15], many gender equality goals have been achieved, mainly in education and health, and an excellent national policy study analysed specific gaps and recommended solutions.

However, gender constraints in Cabo Verde continue to limit women's access to resource benefits as well as their ability to contribute fully to sustainable and equitable growth. Cabo Verde has made

[15] UN WOMEN. Cabo Verde: Country Gender Profile, 2018.

significant progress in promoting gender equality, particularly in terms of a legal and institutional framework conducive to gender equality as well as good outcomes in health and education. The establishment of the Cabo Verde Gender Observatory has shone a spotlight on gender inequalities that persist in the country. Women's economic empowerment has been apparently hampered by multiple obstacles, and women are over-represented in unpaid work and the informal sector. Many health, education and legal issues remain, including for women and girls, facing specific difficulties of rural isolation, disability, or sexual abuse.

2.9.1.1 Households headed by Women

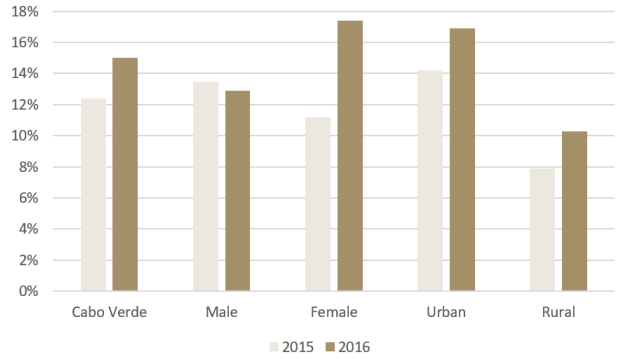
A significant number of the households in Cabo Verde are led by women due to various factors, including the impact of slavery and colonization on family structure, the persistence of patriarchal attitudes and culture, and the high rates of male emigration in search of better jobs. Combined with the high unemployment rate for women, these households headed by women often suffer from poverty.

2.9.1.2 Employment/ Unemployment

Cabo Verde faces a significant challenge due to the lack of employment opportunities, especially for women with secondary education or higher. In recent years, the economically active population grew more than the overall rate of job creation. Two studies, completed in 2015 and 2016, explored how the labour market is highly segregated with men working primarily in such sectors as construction, transport, and agriculture, while women are primarily employed in sales and services.

The national unemployment rate increased from 12.4% in 2015 to 15% in 2016, as shown in Figure 2-2.

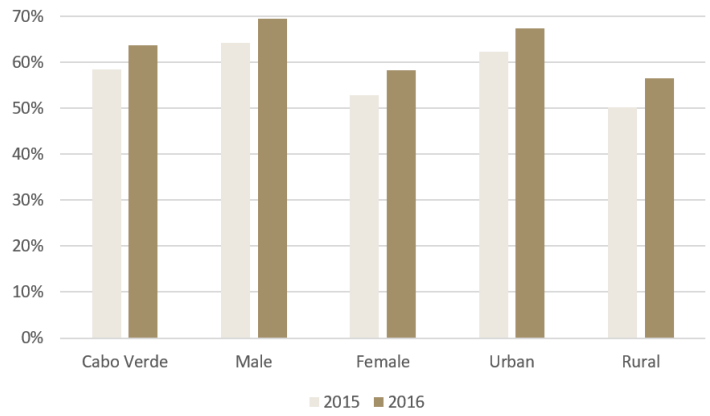
Figure 2-2 Unemployment rate 2015-16 by gender and region



UN Cabo Verde: Country Gender Profile, 2018

The labour market participation rates increased compared to 2015 by 5.4% overall and by 5.5% for women, however the participation rates remain lower for women than for men, as shown in Figure 2-3. Of working aged women, 58.2% are in the labour market and about 42% are unemployed or looking for work. Many of the younger women in this age group are in school or caring for children. Information by sector and occupation for the total Cabo Verde employed population and by gender is summarised in Table 2-13.

Figure 2-3 Labour Market Participation Rate 2015-16 by gender and region



UN Cabo Verde: Country Gender Profile, 2018

Table 2-13 Employment by sector and occupation by gender, 2018

Employment	Total		Male		Female	
Sector / Industry	Number	%	Number	%	Number	%
Agriculture, forestry, fishing	25,917	13.0	19,261	17.0	6,656	7.8
Manufacturing	20,539	10.3	12,502	11.0	8,037	9.5
Construction	25,630	12.9	24,911	21.9	719	0.8
Trade	32,083	16.1	12,899	11.4	19,184	22.6
Transportation	10,690	5.4	9,523	8.4	1,167	1.4
Tourism	11,497	5.8	3,777	3.3	7,720	9.1
Other sectors	72,302	36.4	30,759	27.1	41,543	48.9
Type of Occupation						
Public administration	1,626	13.6	912	13.3	714	14
Private business sector	2,240	18.7	1,780	25.9	460	9
State business sector	337	2.8	283	4.1	54	1.1
Self-employed with staff (service)	5,659	47.2	2,713	39.4	2,946	57.7
Self-employed without staff	910	7.6	687	10	223	4.4
Family business (paid family worker)	228	1.9	103	1.5	125	2.5
Household	463	3.9	88	1.3	375	7.4
Producer cooperative	16	0.1	12	0.2	4	0.1
International organizations	22	0.2	15	0.2	7	0.1
NGO	33	0.3	20	0.3	13	0.3
Other	450	3.8	269	3.9	181	3.5

UN Cabo Verde: Country Gender Profile, 2018

2.9.1.3 Gender and the Economy

The AfDB Gender Equality Index and the World Economic Forum Gender Gap Index rank Cabo Verde very low in economic participation and opportunity. Women lead approximately 35% of Cabo Verde

businesses, but only 18% of companies have formal accounting. The informal sector is large, possibly as high as 59% with women as the majority.[16]

Women with secondary education or above have lower employment rates than those with only primary schooling. This market condition could negatively impact incentives for parents to keep girls in school and increase pressure for educated women to search for appropriate work elsewhere, potentially resulting in a "brain drain" of educated women.[17]

2.9.2 Gender-based conflicts

Gender-Based Violence (GBV)

Gender-Based Violence (GBV) is a high priority topic of the Government of Cabo Verde and civil society, and received support from international aid partners, including UN Women. The *Lei Especial sobre Violência Baseada no Género* (Lei VBG), passed in 2011, imposes criminal penalties for all gender-based violence – physical, psychological, and sexual. It also includes provisions against sexual harassment and a program for male offenders to prevent recurrence. Despite this progress, more rapid action to respond to complaints may require additional resources. Since the implementation of the Lei VBG, the number of judicial complaints has increased but the available data show a low-resolution rate.

The Attorney General's Office reported 1,865 cases of gender-based violence between August 2021 and July 2022, an approximate 11% decrease compared to the previous period, August 2020 to July 2021.[18] The National Police regularly accompanied survivors of sexual violence and other forms of gender-based violence to the hospital and escorted them to their homes to collect their belongings. Police officers helped survivors go to a safe location. The Cabo Verde Institute for Gender Equality and Equity ran five shelters on four islands, two on Santiago and one on each island, Fogo, São Vicente, and Boa Vista. The law criminalizes sexual harassment, although it does not refer to harassment online. Penalties for conviction include up to one year in prison and a substantial monetary fine. Although authorities generally enforced the law, sexual harassment was common.

Reproductive Rights

There are no reports of coerced abortion or involuntary sterilization on the part of government authorities. Health care facilities provided emergency care, including postabortion care. Emergency contraception is available at family planning centres throughout the country. These centres also provide skilled assistance and counselling before and after childbirth, and sexual and reproductive health services, including for survivors of sexual violence. Emergency contraception is available as part of clinical management of rape. Postnatal services include family planning and free oral and injectable contraceptives. When girls became pregnant while still in school, they generally dropped out of school and do not resume their education, though leaving school is not required.

[16] UN Cabo Verde: Country Gender Profile, 2018.
[17] INE, Census Data 2021 & UN Cabo Verde: Country Gender Profile, 2018.
[18] US Department of State: 2022 Country Reports on Human Rights Practices: Cabo Verde. Available at: https://www.state.gov/reports/2022-country-reports-on-human-rights-practices/cape-verde/

Discrimination

The law, including that related to family, religious, personal status and nationality, labour, property, inheritance, employment, access to credit, and owning or managing business or property, provides for the same legal status and rights for women as for men.

2.9.3 Vulnerable communities

The most vulnerable Cabo Verdean communities[19] are the following:

- **The poor – especially those living in extreme poverty:** Poverty in Cabo Verde is not a problem of insufficient resources, but of distribution. The poor in Cabo Verde live on less than $2.6 per day in urban areas and $2.2 per day in rural areas. About 30% of the poor live in extreme poverty, i.e., less than $1.3 per day in urban and rural areas. Women comprise the majority (53%) of the poor population as well as the majority (54%) of the population in extreme poverty, especially in rural areas. Santiago Island has the largest population in poverty housing.
- **Young people from the islands without access to higher education institutions:** Cabo Verde has inequities in access to higher education. Public and private higher education institutions are based in the cities of Praia, Assomada, and Mindelo. Consequently, the opportunities for access and permanence in higher education by young people of the islands of Santiago and São Vicente are far superior to those of young people of other islands.
- **Families with problems of access to piped water or electricity:** The vast majority of the population live in households with access to basic services. However, about 20% of the poor and 30% of those living in extreme poverty lack access to electricity, particularly in rural areas, and only 51% of poor households obtain water mainly from the public system. Moreover, thousands of people are often without power and public water due to the high tariff.
- **People with special educational needs who have difficulty accessing education:** Only 2,822 people with disabilities attend a public or private educational institution, compared to 133,000 people without disabilities. In Cabo Verde, people with visual, motor or hearing disabilities face physical, architectural and mobility barriers. Both housing and services buildings have no access, movement and hygiene functionalities adapted to these people. Thus, part of the population with disabilities is in danger of not having basic needs met.

2.9.4 Labour Conditions

The Cabo Verde constitution, Article 61, safeguards a set of workers' rights, irrespective of age, gender, race, religion, and political or ideological beliefs. The constitution states that workers are entitled to fair remuneration according to the quantity, nature and quality of work provided, the dignity, hygiene, health and safety conditions at work, a maximum working day limit and weekly rest, and social security, freedom to join trade unions, and rest and leisure.

An overview of the main workers' rights according to the 2022 US Country Reports on Human Rights Practices: Cabo Verde[20] is presented below:

[19] Governo de Cabo Verde, SDG – Voluntary National Report on the Implementation of the 2030 Agenda for Sustainable Development, 2018.
[20] US Department of State: 2022 Country Reports on Human Rights Practices: Cabo Verde. Available at: https://www.state.gov/reports/2022-country-reports-on-human-rights-practices/cape-verde/

Freedom of Association and the Right to Collective Bargaining

The law provides for the rights of workers to form or join unions of their choice, to engage in collective bargaining, and to conduct legal strikes. The labour code provides for protection against antiunion discrimination and for the reinstatement of workers. The code designates certain jobs as essential and limits workers' ability to strike in associated industries.

Services provided by telecommunications, justice, meteorology entities, health, firefighting, postal service, funeral services, water and sanitation services, transportation, ports and airports, private security, and the banking and credit sectors are considered indispensable.

The law states the government may force the end of a strike when there is an emergency or "to ensure the smooth operation of businesses or essential services of public interest."

Unions are allowed to work without interference. The government respects workers' right of freedom of association and the right to collective bargaining and effectively enforces applicable laws in the formal sector outside of the essential jobs list. Penalties for violations are commensurate with those for other laws involving denials of civil rights and are regularly applied against violators.

Prohibition of Forced or Compulsory Labour

The law prohibits all forms of forced or compulsory labour, including by children. The government effectively enforces applicable laws in the formal sector.

The labour code prohibits forced labour, and slavery is illegal according to the penal code. Efforts continue to reduce the vulnerability of migrants from West Africa to exploitation in in the employment of the construction and tourist sectors, and to increase their integration into Cabo Verde society.

Despite these efforts, the 2021 US Human Rights Practices Assessment on Cabo Verde states that migrants from China, Guinea-Bissau, Senegal, Nigeria, and Guinea may receive wages below minimum wage and work without contracts, creating vulnerabilities to forced labour in the construction sector.

Prohibition of Child Labour and Minimum Age for Employment

The government has established laws and regulations related to child labour. However, gaps exist in Cabo Verde's legal framework to adequately protect children from the worst forms of child labour, including the prohibition of forced labour.

The minimum age for work, according to Article 261 of the Labour Code, is 15 years for normal work and 18 years for hazardous work. The percentages of the child population that are employed, attending school, or combining work and school are compared in Table 2-14 with the primary education completion rate.

Table 2-14 Child employment and education

Child Employment and Education	Age Range (years)	Child Population (%)
Working	10 to 14	3.2
Attending school	5 to 14	90.1
Combining work and school	10 to 14	1.7
Primary completion rate	-	100

2022 Findings on the Worst Forms of Child Labour: Cabo Verde, U.S. Department of Labour

The National Committee for Child Labour Prevention and Eradication coordinates the execution of the National Action Plan for the Prevention and Eradication of Child Labour and provides a functional mechanism for reciprocal referrals between law enforcement and social services. Cabo Verdean government funded and participated in the following three social programs with the main goals of eliminating and preventing child labour:

- Child labour awareness campaigns: this program conducts national awareness-raising campaigns on the worst forms of child labour, the rights of children, among others.
- Help for at-risk children and social protection and reintegration centres: these centres provide education, health services and professional training to vulnerable children and their facilities.
- Child emergency centres: this program operates two emergency centres for child victims of abuse and sexual exploitation in Santiago and São Vicente islands, operating 24/7.

Discrimination with Respect to Employment and Occupation

Labour law prohibits discrimination in employment and occupation based on race, religion, colour, gender, disability, language, sexual orientation, gender identity, political opinion, ethnic origin, age, HIV-positive status or having other communicable diseases, or social status. The law does not, however, explicitly prohibit discrimination based on national origin. The government somewhat effectively enforces the law, and penalties for violation are commensurate to those related to civil rights. Penalties are rarely applied against violators.

Acceptable Conditions of Work Wage and Hour Laws

The law stipulates a monthly minimum wage greater than the official estimate of the poverty income level. The law stipulates a maximum of eight hours of work per day and 44 hours per week, including mandatory rest periods, the length of which depends on the work sector.

Although companies tended to respect laws on working hours, many employees, such as domestic workers, health-care professionals, farmers, fishers, and commercial workers, commonly worked for longer periods of time than the law allows.

Occupational Health and Safety

The law sets minimum occupational health and safety (OHS) standards and gives workers the right to decline work if conditions pose serious risks to health or physical integrity. In specific high-risk sectors, such as fishing and construction, the government may and often does provide, in consultation with unions and employers, occupational safety and health rules.

In 2021, the most recent year for which data were available, the Inspectorate General for Labour registered 1,112 work-related accidents and three deaths.

Wage, Hour, and OSH Enforcement

The government effectively enforces minimum wage, overtime, and OSH laws. The penalties for violations are commensurate with those for similar crimes, such as fraud or negligence, and penalties are regularly applied against violators. The Inspectorate General for Labour and the Directorate General for Labour are the main agencies responsible for enforcing wage, hour, and Osh laws. The number of labour inspectors are sufficient to enforce compliance. Labour inspectors have the authority to make unannounced inspections and initiate sanctions and carry out inspections of workplaces throughout the country to check for and deter violations (as reported in 2022).

Informal sector

Approximately 52% of jobs in 2022 were in the informal economy, including domestic work and self-employment in tourism, trade, agriculture, livestock-raising, and fishing. Informal sector workers were not covered by national salaries or hourly wages, Occupational Safety and Health, or other labour laws and inspections.

3 Climate Change Issues

3.1 Climate vulnerabilities

As a Small Island Developing State (SIDS), Cabo Verde contributes insignificantly to global warming. However, due to the fragility of their ecosystems, it is among the countries that suffer most from the consequences of this phenomenon. Cabo Verde suffers from increased climatic aridity and frequent droughts, worsening saline intrusion and deterioration of groundwater, soil degradation and loss of biodiversity, and increased frequency of storms and hurricanes, among other consequences. Due to the size and limited strength of its economy, Cabo Verde has a limited capacity to replace the damage caused by catastrophes resulting from extreme weather and climatic events.

As an archipelago of ten volcanic islands without permanent water courses, natural forests are not present, mineral resources are limited, and only 12% of the territory is arable land. Cabo Verde is particularly exposed to increasingly extreme weather events, desertification of land, persistent droughts, occasional but severe and highly damaging heavy rains (most recently in September 2020), and sea-level rise.

Therefore, the archipelago faces severe challenges for adaptation to climate change, particularly associated with water resource scarcity, food, and energy security, among others. Access to affordable and sustainably sourced energy and water, protection of the islands' delicate and unique biodiversity and soils, sustainable development, and deployment of socio-ecological resilience within the boundaries of the terrain impact on policy choices and pose risks for survival.

Since 1990, temperatures have increased in Cabo Verde by 0.04% per year. Projections indicate a temperature increase of about 1°C until 2040 and 3°C until the end of the century, according to the 2011-2040 projection provided in Figure 3-1. Records show reduced annual average precipitation by 2% and a temporal extension of the dry season, with increased likelihood of droughts and shortened rainy season, resulting in concentrated, heavy, and localised rains over short periods, causing high water discharge and run-off and soil erosion.[21]

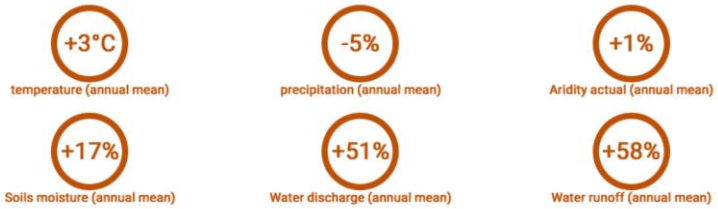
Furthermore, the Cabo Verde islands are highly vulnerable to increased sea level. Compared to 1980-1999, climate models project sea rise in this region by 2090[22] based on three scenarios, as follow:

- From 0.13 to 0.43 metres (SRES B1 scenario)
- From 0.16 to 0.53 metres (SRES A1B scenario)
- From 0.18 to 0.56 metres (SRES A2 scenario)

Unfortunately, the uncertainty surrounding these projections is high.

[21] Cabo Verde 2020 Update to the first NDC.
[22] National Adaptation Plan of Cabo Verde, Ministério da Agricultura e Ambiente, 2021.

Figure 3-1 Climate indicators for the period 2011-2040



Cabo Verde 2020 Update to the first NDC

3.2 Climate hazards

The potentially most damaging climate hazards for Cabo Verde are **droughts, floods, landslides, forest fires, sea-level rise, coast and beach erosion, and epidemics.** Non-climate related hazards include volcanic and seismic activities. The 2020 disaster risk profile of Cabo Verde is provided in Figure 3-2. Research has found that about 80% of the archipelago's territory is highly susceptible to drought, especially the shallow islands and São Vicente.

Figure 3-2 Disaster Risk Profile of Cabo Verde

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

Cabo Verde 2020 Update to the first NDC

The groups most vulnerable to climate change and the connections between gender and climate policy and planning are not sufficiently defined or institutionalised in Cabo Verde. The highest climate change vulnerability is in the cities, the shallow islands, the steep agricultural and forested areas, and the coast lines. Populations and assets are concentrated in coastal cities. Considering Cabo Verde's small and dispersed geographic area, disasters can take country-wide proportions.

Since Cabo Verde ratified the UN Framework Convention on Climate Change (UNFCCC) in 1995, these climate vulnerabilities have been studied and are being monitored. The Government of Cabo Verde has worked to reduce the nation's overall vulnerabilities and exposure to disaster and increase their ability to cope with climate change.

The Government has undertaken efforts to reduce its carbon dependence and shift its energy generation from fossil fuels to renewable sources. The country is endowed with a high potential for exploiting renewable energies. Having developed a comprehensive network of terrestrial and maritime protected areas and biosphere reserves, the country is poised to mobilize its potential for sequestering carbon naturally in its ocean, forests, wetlands, and soils.