CAPE VERDE: NAPA PROJECT PROFILE

CAPE VERDE

NAPA PRIORITY PROJECT 1

MOBILIZATION AND INTEGRATED WATER RESOURCES MANAGEMENT

JUSTIFICATION

In the context of the studies on vulnerability and adaptation to the climatic change in Cape Verde, the water resources sector was identified as being the most vulnerable and, as a consequence, considered as one of most priorities in what concerns the sectors that must benefit of urgent and immediate measures of adaptation aiming at facing the negative impacts of climate alterations.

Effectively, Cape Verde is undergoing a considerable reduction of rainfall since the decade of the 70s in the past century. The annual average of precipitation is currently around 225 mm.

All rainfall projection scenarios up to 2020, made with an adjustment of percentages of plus or minus 10% and 20% starting in 1990, had indicated values that are inferior to the average during the period under consideration (373,3 mm). However, one can observe the existence of periods with annual values that are both superior and inferior to the normal.

Although the real causes of this phenomenon are yet to be determined, all scenarios in the sub-Saharan Africa sub-region indicate a reduction of the current average rainfall in the order of 20% and an increase of temperature in the order of 4ºC up to 2100. Cape Verde being inserted in this sub-region will also be negatively affected by these alterations, which could become even more aggravated due to the insularity conditions.

Parallel to this reduction of rainfall, one observes the decrease of the length of the rainy season, the spatialtemporal variability is getting greater and greater and the torrential character of these confers negative impacts to a wide array of variables, namely:

- Poor agricultural production and the negative effects on food security;
- Over exploration of the water sources, drilled wells and wells, as well as the consequent degradation of water resources;
- The increase of rural exodus, exacerbating the inherent socio-economic problems;
- The generalized degradation of the living conditions of the populations and the increase of the poverty incidence index.

With exception of desalinized water, all water used in Cape Verde originates from underground sources which are fed by precipitations. However, the volume of surface water is in general considerably superior to the volume of underground waters. Effectively, some studies had indicated infiltration values that vary between 13% and 17%, against 20% and 51% for draining.

This way, the current problems facing the water resources sector impose the need for preventing that the increasing water scarcity constitutes a barrier to the desired socio-economic development. Besides the increasing search for forms of mobilizing new resources, such as seawater desalinization, it is necessary to identify all possible means to ration use of water, with the objective of getting maximum benefits for the population.

In spite of innumerable initiatives (plans/projects/programmes) implemented in the last decade in matters related to mobilization and capture of water resources, evidence shows that the access and supply of water to families still remains deficient, mainly in rural areas.

Thus, the mobilization and integrated management of water resources project is one of most priority, allowing operationalization of a set of immediate and urgent adaptation measures, identified during the NAPA process.

DESCRIPTION

Global Objective

The global objective of this project is integrated within the context of the development objectives, as indicated in several key Cape Verde macro-policy instruments such as the Great Options of the Plan, the DECRP (Growth and Poverty Reduction Strategy Document), the Millennium Development Objectives (MDGs), and sectoral plans such as the 2004 -1014 National Environment Action Plan (PANA II) and the Agricultural Development Strategical Plan for the 2015 Horizon.

Effectively, the global objective of this project is to contribute to concretization of the development goals as indicated:

1. Contribute to the sustainable development on the basis of the integrated and participatory valorization of natural resources and on the local socio-economic sector.
2. Contribute to the improvement of living conditions of target populations, with improvement and amplification of the productive basis of agro-silvo-pastoral and maritime resources.

This global objective is, in a general way, valid for the other projects identified.

Specific Objective

The specific objectives of this project are reduction of the vulnerability of the water resources sector in face of the negative impacts of climate change and increased capacity for capture, provision and storage of surface waters.

COMPONENTS, RESULTS AND ACTIVITIES

COMPONENT 1: Reinforcement of stakeholder's capacities in matters of adaptation to the climate and variability changes under the systemic, organizational and individual point of view

Result 1

The precise status of water resources in Cape Verde is known and a favourable environment to Integrated Water Resources Management (GIRH) is created;

Activities

- Update of the water balance of Cape Verde;
- Elaboration of decentralized management plans on water production and distribution infrastructures;
- Training of stakeholders in GIRH techniques;
- Technical, material and organizational support from the institutions (central and municipal) and from the community base organizations for water resource management;
- Adoption of norms on water quality.

COMPONENT 2: Investment, conservation and field protection activities

Result 2

The volume of water mobilized for domestic, agriculture, industry and tourism use is significantly increased.

Activities

- Construction of small family size cisterns, communitarian cisterns and respective collection surfaces,
- reservoirs, capture, provision and water storage infrastructures, small dams or aqueducts, and promoting diffusion of localized and drip irrigation, particularly for fruit and vegetable crops;

- Promote installation of water harvest systems from clouds in high altitude zones;
- Construction of infrastructure for recharge of aquifers and retention in order to diminish the losses through underground draining in direction of the sea, such as underground filters;
- Replacement of the traditional water provision installations (open sky piping) for irrigation under closed conditions;
- Construction of residual water treatment infrastructure.

COMPONENT 3: Research-action for improvement of the resistance of populations and ecosystems.

Result 3

The knowledge on the state of the water resources and the traditional practices of adaptation to the variations of the water cycle are better known and new techniques associated to the GIRH better are adopted.

Activities

- To carry out a participatory survey on the relative knowledge of the state of the water resources in the aquifers sheets, supply sources and wells;
- To establish modelling maps and an information and monitoring system on water resources;
- To carry out participatory research on the knowledge of traditional practices of adaptation to the
- variations of the water cycle;
- To experiment new techniques of adaptation of GIRH in the field, in the perspective of replication on a wider scale.

COMPONENT 4: Mobilization, Information, Sensitization of the stakeholders on the risks associated to climate change and variability

Result 4

The stakeholders are aware of the risks associated to the variations of the water cycle and know the urgency measures to be taken in case of need.

Activities

- Preparation of a sensitization campaign for the populations on the eventual risks due to the modifications of the natural water cycle (storms, flooding, droughts, and others) and urgency measures to be taken in case of need;
- Support the participation of Cape Verde in the information exchange networks on issues of adaptation to the climate change and integrated water management;
- Creation of a multiple stakeholder platform, according to directives of the Global Water Partnership (GWP).

PROJECT COST ESTIMATES

COMPONENTS	**%**	**COST ESTIMATES** (USD)
1. Reinforcement of stakeholder's capacities in matters of adaptation to the climate and variability changes under the systemic, organizational and individual point of view	18%	2 462 000
2. Investment, conservation and field protection activities	57%	7 797 600
3. Research/action to improve resistance of the populations and ecosystems	14%	1 915 200
4. IEC of the stakeholders on the risks associated to the climate and variability changes	7%	957 600

5. Project management costs	4%	547 200
TOTAL*	100%	13 680 000

Potential donors identified

- Government of Cape Verde;
- Global Environment Facility (GEF);
- United Nations System in Cape Verde;
- Luxembourg Cooperation;
- Austrian Cooperation;
- Global Water Partnership.

CAPE VERDE

NAPA PRIORITY PROJECT 2

MODERNIZATION AND DIVERSIFICATION OF AGRICULTURAL PRODUCTION FOR FOOD SECURITY IMPROVEMENT

JUSTIFICATION

Similarly to the Water Resources, the agricultural sector is characterized by a great vulnerability due to scarcity of natural resources (water and soil) and to the climatic conditions.
Extreme events, such as landslides and floods, signal the culminating points of vulnerability and climate change with great socio-economic impacts. The frequency of these events seems higher at the global level.

The frequent torrential rains in Cape Verde provoke enormous losses of infrastructure, agricultural production, means of subsistence, large amounts of water into the sea and, at times, displaced families, or even loss of human lives.

Despite this vulnerability, agriculture, like other sectors in the agrarian area, is important for the country, allowing for subsistence of a large number of families, whose family life organization is highly associated to the land, although they are not able to achieve alimentary self-sufficiency.

According to RGA 2004 data, the total agricultural population was 222,254 people, making up for 47.35% of the population projected for 2004, which is an indication of the socio-economic weight of this sector, despite the vulnerability and fragility of the productive tissue. This importance is particularly accentuated for women since the female agricultural population varies between 45.9%, in the Paul region of the island of Santo Antão and 56.1%, in the Tarrafal region, island of Santiago.

As a sub-Saharan country, Cape Verde suffered very intensely the catastrophic effects of droughts[1]. This climatic particularity characterized by the extreme insufficiency and irregularity of precipitations, both temporally and spatially, associated to the scarcity of agricultural lands and its strong degradation through soil erosion, is the root cause of vulnerability and fragility of the agricultural sector.

Rain fed agriculture that represents the greater potential of agricultural production of the country is practiced in very steep hillsides of the humid and sub-humid regions of the watersheds, where water erosion is very important and human pressure becomes greater and greater. This phenomenon leads to an annual loss of arable land of considerable proportions and, as a consequence, to the increase of crop practice in marginal soils, using the association of maize and beans, a technique that further aggravates the soil erosion process.

Despite the important efforts already undertaken in the area of water and soils conservation, the necessity of protection against erosion, in particular water erosion, continues to be an imperative all over the humid and sub humid bioclimatic strata. On the other hand, particularly for the lower lying communities, the maintenance and improvement of the hydrologic balance becomes essential, mainly in what concerns reduction of surface draining.

Similarly, the establishment of integrated protection systems that allow for a rational and sustainable exploration of water, soil and vegetation resources on the part of local farmers/raisers, has a capital importance role in reduction of vulnerability and the negative effects of climate change, having in account its contribution for the recharge of aquifers, soil protection, increase of firewood production and fodder, use of marginal lands for rain fed crops through adoption of agro-forestry systems and increase of agricultural productivity.

[1] In the past 265 years, there were 97 years of drought, that is, one year of drought on the average in each 3 years. From the droughts that were registered, 14 had a duration of 3 years or more (2002-2005 National Sustainable Food Security Strategy, cited in the 2004-2007 DECRP, pag. 22).

On the other hand, besides the contribution for protection and restoration of the environment that is in a current process of accelerated degradation, the project will also contribute to improve the conditions of life of several poor rural families who depend almost exclusively on land productivity for their subsistence. It will also allow, at the medium term, to place a large potential of labor in the field and, in the long term, to generate some self-employment in the silvo-pastoral domain.

Thus, the relevance of implementation of this project is to gradually make agricultural activity less vulnerable to the negative impacts of climate change, improving simultaneously the level of income of the families and the perspective of alimentary security, in particular that of the most vulnerable families in the rural world, where the rates of poverty and extreme poverty are higher, mainly because their survival strategies depend to a great extent on agricultural activity.

DESCRIPTION

Specific Objective

To adapt the agro-silvo-pastoral production systems to the climate change and variability, aiming at reducing food insecurity.

Duration

The estimated duration of the Project is five (5) years.

COMPONENTS, RESULTS AND ACTIVITIES

COMPONENT 1: Reinforcement of stakeholder's capacities in matters of adaptation to the climate and variability changes under the systemic, organizational and individual point of view

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Result 1a

The stakeholders are better organized and trained in sustainable production techniques

Activities

- Training of stakeholders in sustainable production techniques (integrated production and protection, hydroponics, greenhouse production, among others);
- Technical, material and organizational support to the institutions and community base organizations, for the integrated and participatory management of watersheds;
- Rehabilitation and transformation of rainfall stations into climatological or agro-meteorological
- stations, in the zones more exposed to the climatic risks;
- Reclassification of the agro-ecological zones;

Result 1b

The policies and the planning instruments of the agro-silvo-pastoral sector take into account the vulnerability and the impacts associated to the climate changes.

Activities

- Revision of the policies and planning instruments of the agro-silvo-pastoral sector in order to take into account the vulnerability and impacts of climate change;
- Integration, socialization and validation of the results of activity 1.

COMPONENT 2: Investment, conservation and field protection activities

Result 2

The production and productivity capacity of the agro-silvo-pastoral systems is increased and the vulnerable production bases (watersheds, forests, etc.) are protected.

Activities

- Intensification and diversification of production of vegetable and fruits crops through the introduction of more adapted crops;
- Support to the practice of vegetable and fruit crop production in pluvial zones, using drip irrigation;
- Construction of torrential correction levees, small walls for correction of ravines in the hillsides, terraces, and other mechanical WSC structures;
- Creation of a rotating fund (micro-credit) for financing income generating activities based essentially on the valuation and the rational management of natural resources;
- Promotion of the use of plant species (*Agave sisalana*), «Barnelo» (*Grewia villosa),* bamboo (*Bambusa vulgaris*) and caniço (*Arundo donax)* against soil erosion (formation of shrub sebes) and utilization of those species for valorization of national handicrafts.

COMPONENT 3: Research/action on the varieties adapted to the current climate conditions

Result 3

New agro-silvo-pastoral techniques are experimented and innovative adaptation mechanisms are implemented.

Activities

- Experimentation of varieties that are best adapted to the climatic conditions;
- Promotion of knowledge and traditional practices of adaptation of agro-silvo-pastoral production systems to climate change;
- To perfect a methodology for elaboration of the crop calendar, as a function of weather forecasts.

COMPONENT 4: Mobilization, Information, Sensitization of the stakeholders on the risks associated to climate change and variability

Result 4

Awareness of stakeholders and the adoption of positive attitudes towards the aggravating factors (forest fires, slopes, deforestation, etc.) of the vulnerability to the climate changes and variability.

Activities

- Collection of extreme meteorological and climatological data and its diffusion to the stakeholders and the rural communities, in order to guarantee the security of the production systems;
- Campaign of sensitization of stakeholders on the negative impacts of the climate change and the climatic variability on natural resources and human activities;
- Promotion of improved and adapted cultural techniques to the climate change;
- Vulgarization of technological packages on adapted varieties.

PROJECT COST ESTIMATES

COMPONENTS	**%**	**COST ESTIMATES** (USD)

1. Reinforcement of stakeholder's capacities in matters of adaptation to the climate and variability changes under the systemic, organizational and individual point of view	15%	225 000
2. Investment, conservation and field protection activities	45%	675 000
3. Research/action to improve resistance of the ecosystems	20%	300 000
4. IEC of stakeholders and rural communities	10%	150 000
5. Project management costs	10%	150 000
TOTAL	100%	1 500 000

Potential donors identified

- Government of Cape Verde;
- Global Environment Facility (GEF) - (OP-15 Sustainable Management Terra);
- United Nations System in Cape Verde;
- European Union;
- African Development Bank (ADB);
- International Fund for Agricultural Dvelopment (FIDA);
- Global Mechanism CCD.

CAPE VERDE

NAPA PRIORITY PROJECT 3

INTEGRATED PROTECTION AND MANAGEMENT OF COASTAL ZONES

JUSTIFICATION

The insular character of Cape Verde (small islands) already constitutes by itself a potential vulnerability in relation to an eventual rise of the sea. It is estimated that 80% of the population in the archipelago, today, is concentrated in the coastal zones. Comparing the relief of the islands and the level of the sea, the flat islands such as Sal, Boavista and Maio are considered the most vulnerable.

A sensible variation of the level of the sea may constitute a danger for Cape Verde's economic sector, particularly the tourism sector, since tourist infrastructures (most of them hotels, airports, fishing zones, and others) are located along the coastal zones. Sal Island, due to the large tourism investments carried out there, constitutes one of the most vulnerable zones of the country.

On the other hand, Cape Verde's coastal zones are negatively affected by the large population density in certain centres, by tourist activity, by the occasional discharge of hydro-carbons, by the abusive and uncontrolled extraction of inert materials (sands and rocks) and by saline intrusion, besides the orography of the maritime edges that, in most cases, is very scarped and very vulnerable to the effects of the tides.

Extreme events such as floods mark the culminating points of vulnerability to the climate changes, with high socio-economic impacts. In Cape Verde, the frequent torrential rains have provoked large losses of infrastructure, agricultural production, enormous amounts of water into the sea, and at times, they originate displacement of families or loss of human lives.

These problems require an urgent action since they may cause loss of maritime habitats, having as main consequences the disappearance of species, the decrease of national potentialities in what concerns leisure places, the fast advance of seawaters, thus reducing the interface edge between the sea and the land, the increase of soil salinity and the reduction of its production capacity, with serious negative repercussions for the agricultural activities developed along the coastal zones.

The climate changes, namely those related to the rise of the level of the sea, accentuate the pressures on the coastal zones, thus leading to the aggravation of the degradation of ecosystems, infrastructure and economic activities. They can also aggravate the amplitude of the current aggressions, provoking flooding of the low altitude zones, displacement of populations, contamination of potable water sources and threatening the means of subsistence of the coastal populations, limiting the development options of the countries where the coastal zones contribute considerably for the economy.

On the other hand, the regional project "*Adaptation to Climate Change: Responding to shoreline Change and its human dimensions in West Africa, through integrated coastal area management (ACCC)*", that includes Cape Verde and has as objective the reinforcement of the capacities of adaptation to the climate change, is being implemented and constitutes the basis of this programme.

As a complement to the ACCC regional capacity reinforcement project, this project insists on field activities, in order to strengthen the resistance of the coastal zones to variability and climate change.

DESCRIPTION

Specific Objective

The specific objective of this project is to increase the capacity of resistance of coastal zones to climate change, through integrated management of the coastal resources, in order to invert the trend of established degradation.

Duration

The estimated duration of the Project is five (5) years.

COMPONENTS, RESULTS AND ACTIVITIES

COMPONENT 1: Reinforcement of stakeholder's capacities in matters of adaptation to the climate and variability changes under the systemic, organizational and individual point of view

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Result 1

The central governmental, decentralized and communitarian structures are equipped to contribute significantly for management of the coastal regions.

Activities

- Revision of the national regulatory framework for integration of the protection needs of the coastal zones in terms of adaptation to climate variability and climate change;
- Harmonization and integration of management activities in the coastal zones within the existing regulatory frameworks;
- Qualification of the decentralized and communitarian governmental structures, in order to allow them to implement the laws and the programs that facilitate adaptation to climate change in coastal regions;
- Elaboration of a contingency plan for the high risk coastal zones;

COMPONENT 2: Investment, conservation and field protection activities

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Result 2

The resistance capacity of the coastal zones is increased and the pressure on coastal resources is decreased.

Activities

- Installation and rehabilitation of coastal protection systems (flexible and rigid);
- Anti-erosive fight along the coasts through construction of channels, reforestation, fight against deforestation and exploration of inert materials, among others;
- Diversification and rationing of income generating activities for explorers of inert materials, through the creation of a micro-credit fund;
- Installation of weather radar for detection and monitoring of significant meteorological phenomena.

COMPONENT 3: Research/action in matters related to utilization and exploration of inert materials in costal zones

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Result 3

Alternatives to utilization of coastal resources (inerts) are utilized in construction of infrastructure

Activities

- Experimentation of materials and alternative means of construction, in order to reduce pressures over the coastal resources;
- Diffusion of technological packages.

COMPONENT 4: Mobilization, Information, Sensitization

Result 4

An early warning system is created and the populations under risk are aware of their status and prepared to manage eventual calamities.

Activities

- Creation of an early warning system linked to the sub-regional and global network;
- Elaboration and diffusion of project informative and promotional documents;
- Creation of a multi-partner platform according to the GWP orientations;
- Preparation of a sensitization campaign for the coastal populations on the eventual risks due to climate changes and variability and the urgency measures to take in case of need;
- Cooperation and support to the participation of Cape Verde in the information networks on issues related to adaptation to climate changes and coastal management.

PROJECT COST ESTIMATES

COMPONENTS	**%**	**COST ESTIMATES** (USD)
1. Reinforcement of stakeholder's capacities in matters of adaptation to the climate and variability changes under the systemic, organizational and individual point of view	20%	300 000
2. Investment, conservation and field protection activities	45%	675 000
3. Research/action in matters related to utilization and exploration of inert materials in costal zones	15%	225 000
4. IEM stakeholders on the risks inherent to the MCs and VCs	15%	150 000
5. Project management costs	10%	150 000
TOTAL	**100%**	1 500 000

Potential donors identified

- Government of Cape Verde
- Global Environment Facility (GEF)
- United Nations System in Cape Verde
- European Union
- African Development Bank (ADB)
- Global Mechanism CCD