

**PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE**

Report No.: AB4660

Project Name	São Tomé and Príncipe - Adaptation to Climate Change
Region	AFRICA
Sector	General agriculture, fishing and forestry sector (80%); Flood protection (20%)
Project ID	P111669
GEF Focal Area	Climate Change
Borrower(s)	São Tomé and Príncipe
Implementing Agency	Ministry of Natural Resources, Energy and Environment (TBC)
Environment Category	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
Date PID Prepared	August 3, 2009
Estimated Date of Appraisal Authorization	July 01, 2010
Estimated Date of Board Approval	September 30, 2010

1. Key development issues and rationale for Bank involvement

The Democratic Republic of São Tomé and Príncipe (STP) is an archipelago comprised of two main islands and four islets located in the Gulf of Guinea 350 km off the west coast of Africa. The country is one of Africa's smallest nations with a total area of 1,001 km² and a population size of 166,000. The country's Gross National Income per capita is US\$870. São Tomé and Príncipe ranked 126/177 in the 2003 UNDP Human Development Index.

STP's economy is fragile and has suffered considerably from the food, energy and financial crises that have exacerbated inflation and negatively affected household incomes especially among the most vulnerable population groups – in particular Angolares artisanal fishers, descendants from runaway Angolan slaves who have inhabited São Tomé since 1540, and have preserved their distinct attachment to the sea. The nation's limited productive base has substantially increased the country's vulnerability to exogenous shocks, and constrains its adaptation capacity. In view of its small size, isolation, limited capacity to achieve sustainable development, Least Developed Country (LCD), and Small Island Developing State (SIDS) status, São Tomé and Príncipe is considered to be highly vulnerable to the effects of climate variability, climate change and sea level rise by both the United Nations Framework Convention on Climate Change (UNFCCC) and the Intergovernmental Panel on Climate Change's (IPCC)

STP's First National Communication to the UNFCCC forecasts increases in temperature of up to 2° C by 2100 coupled with a decrease in precipitation of about 15 percent. IPCC scenarios also predict an increase in temperature of up to 2°C by the middle of the 21st Century for the STP region, with increased variation in precipitation patterns, longer dry seasons, increased flooding and dry fog.

In 2007, STP released its National Adaptation Program of Action (NAPA), identifying 22 urgent and immediate climate change adaptation priorities. Studies conducted during preparation of the NAPA documented that STP has experienced the following phenomena: (i) temperature increases; (ii) decrease in rainfall and subsequent decrease in riverflow and water supply; (iii) deaths of artisanal fisherman and loss of fishing equipment due to increased fog, strong winds and increased turbulence at sea (disrupting traditional navigation and safety-at-sea practices); (iv) destruction of fishing vessels along harbors and beaches due to increased storms; (v) increase in women's poverty due to loss of their husbands' lives and

fishing equipment; (vi) longer dry seasons leading to drought conditions which, followed by torrential rains, lead to landslides, flooding, groundwater contamination; (vii) increasing coastal erosion leading to loss of houses and infrastructure and isolation of local communities and (viii) decreased tourism.

A June 2009 study by University of Cape Town experts found a general trend towards increasing aerosol concentration and precipitation during the December-February season, consistent with fishers' reports that the fog season had changed since the early 1980s. The report also noted that over the last two decades the dry season has become drier and the wet season wetter, suggesting a longer dry season and potential increases in rainfall intensity. Compared to the 1980s, precipitation during the 2000s increased by up to 25% from September through May. Further analysis of station data were recommended before firm conclusions could be drawn.

Coastal Management in São Tomé and Príncipe

The archipelago is of volcanic origin, with an uneven sea floor. As such, most fishing areas are distant from the coast. Within the artisanal, 12 mile zone, fishers travel often a considerable distance from the coast. Fishing is practiced by artisanal fishermen using techniques adopted 50 years ago: using dug-out canoes of which two-thirds are paddled or have make shift sails limiting fish catches to coastal areas. The small fleet of motored fishing boats which allows for mid-range coastal fishing was hit hard by the fuel price increase, thus affecting the price of fish which provide 70 percent of protein intake in the country. The fishing industry is considered key to poverty alleviation and essential to the nation's health and welfare. Current estimates indicate that artisanal fisheries employ 20% of the nation's workforce and represent one of the main employment opportunities in rural areas. There are approximately 5,000 people working directly in the fisheries sector with an additional 18,000 indirectly.

When there is fog, strong winds or torrential rains, fishermen can die or suffer debilitating accidents, and the Maritime Police (Capitania) has had difficulties organizing search and rescue operations despite recent training by Portuguese civil defense. Whilst before fishers used to find land through cloud navigation, many now report this to have been disturbed by the increased aerosols transported from the African continent during the fog season (December-February). Thus, the Government of São Tomé and Príncipe has given highest priority under the NAPA to strengthening its system of early warning and providing better detection equipment to save lives at sea. One of the systems being considered is the simple provision of sailboat radar reflectors (at a cost of Euro 40/unit) allowing the civil defense to better direct search and rescue operations.

Rising abruptly from the seafloor, the coast of São Tomé is particularly vulnerable to coastal erosion. In the past, most pressures seem to have been caused by anthropogenic factors such as cultural practices (e.g. the Angolares' habit of constructing close to the seashore), weak spatial planning and uncontrolled coastal development, and sand mining. However, in recent times, the Government has banned sand mining, and the NAPA consultations indicate a growing community awareness that in certain Angolares communities (e.g. Ribeira Afonso, Sta. Catarina, Malanza), the risk has increased due to a combination of flash river flooding, more intense coastal storms, and persistent cultural habits. Some of these communities have thus requested Government help in controlling growing problems of coastal erosion. What is certain is that both climate change and anthropogenic effects are already happening and will increase their effects on the coast – and São Tomé needs to be better prepared to handle it in the future. The coast is where most of São Tomé's human and economic infrastructure lies. The time to increase its resilience is now.

Rationale for Bank Engagement

To address these adaptation challenges, the Government of São Tomé and Príncipe requested Bank assistance to prepare a full-size Global Environment Facility (GEF) project through the Least Developed Countries Fund (LDCF). LDCF funding is available by GEF to fund the additional costs of the most urgent and immediate adaptation which (a) are of highest priority in the NAPA; (b) have a realistic geographical and physical focus so as to constitute a fungible investment project; and (c) execute the project through the agency most suitable to implement the priority actions of the NAPA.

The assistance of the Bank as Implementing Agency was requested for various reasons: first, the Bank helped the Government of São Tomé and Príncipe to prepare the NAPA; second, it capitalizes on the Bank's knowledge in the field of climate change and disaster risk management globally, and in the Africa region in particular. Third, it builds on the Bank's expertise on adaptation in Small Island Developing States (with special emphasis on the Caribbean and Pacific Regions).

The Project is consistent with the CAS (2006-2009) which supports implementation of the Poverty Reduction Strategy Paper (PRSP). The Project focuses on ensuring food security, reducing poverty and safeguarding the long-term sustainability of artisanal fisheries against the adverse impacts of climate variability and change. Specifically, this Project will support investments in line with three of the five PRSP pillars: i) reform of public institutions, capacity building and good governance; ii) creation of opportunities to increase and diversify income for the poor; and, iii) human resource development and access to basic social services.

The Project is also consistent with country priorities and builds on existing investments, policies and political commitments. The Major Planning Options (2008) of the Government states that financial resources will be allocated to the productive sectors (e.g., fisheries) as well as to support sustainable development of rural communities. This Project will provide financing to address the climate change adaptation aspects of the government's development investments as well as interventions financed by other development partners in the fisheries and forest sectors.

Following a joint World Bank/UNDP mission in May 2009, it was agreed that the Government would establish a National Adaptation to Climate Change Program with the following program goal:

To increase the adaptive capacity of the Sao Tome and Principe population to reduce their vulnerability to the adverse impacts of climate variability and change

While the UNDP/Japan Adaptation Fund will help finance the Land-Based Adaptation Component and Capacity Building components of the national program, the LDCF project will focus on the Coastal Adaptation for Vulnerable Communities pillar of the national adaptation program.

2. Proposed objective(s)

The Development Objective of the LDCF project would therefore be:

To increase the adaptive capacity of vulnerable coastal communities in S. Tome and Principe to the adverse impacts of climate variability and change

The main outcome indicators would be as follows:

- Early warning system reduces loss of lives and canoes during extreme weather events
- Coastal adaptation measures reduces the risk of potential loss of assets of target communities

The indicators would be reviewed carefully during project preparation to ensure the realism and availability of adequate baseline data.

Preliminary description

The LDCF Project would focus on pillar B of the program (*Coastal Adaptation for Vulnerable Communities*)– the highest priority sector and geographical focus of the NAPA. The estimated total cost would be US\$6.54 million, with US\$3.25 contributed by the LDCF Grant, and US\$3.29 contributed by co-financing sources. The proposed instrument would be a Specific Investment Loan (SIL).

The project would be organized in three components:

Component 1: Coastal Early Warning System (LDCF: US\$1.2 million; Co-Financing: US\$0.7 million):

This component would focus on Priorities 1, 2 and 15 of the NAPA. Investments would help artisanal fishermen adapt to the adverse impacts of climate variability and change by reducing loss of canoes, fishing equipment, reducing the number of accidents and lowering the risk of death caused by storms, fogs and strong winds. The project would therefore distribute safety equipment (such as simple radar reflectors and life vests), provide training on safety at sea, establish an early warning system for dissemination of meteorological forecasts to fishermen and coastal communities, and reinforce contingency plans and coastal emergency preparedness. Such investments are expected to strengthen the safety of fishers and fishing equipment against extreme weather conditions, and avoid loss of lives. They will provide additional adaptation financing for the GoSTP's fisheries support program aimed at improving the working conditions of artisanal fishermen and the System for Climatic Information and Sea to Support the Sustainable Development of São Tomé and Príncipe (SICLIMAD), co-financed by the Spanish and Portuguese Collaboration.

Component 2: Coastal Protection for Vulnerable Communities (LDCF: 1.75 million; Co-Financing: US\$1.5 million)

This component would focus on Priorities 3, 9 and 10 of the NAPA and on one of the most visible effects of climate change in the country: coastal erosion. Angolares villages are built very close to the coastline, and have therefore suffered from high rates of coastal inundation and erosion. In several villages of S. Tome – Pantufo, Ribeira Afonso and Malanza – fishermen need a better shelter for their canoes to prevent continuing losses of fishing equipment during storms. Ribeira Afonso, Malanza and Sta. Catarina are also amongst the villages which need urgent coastal adaptation solutions to safeguard the most vulnerable houses threatened by mounting seas. During preparation, the project would carry out a detailed geomorphology and social vulnerability mapping study to determine, in consultation with the target communities, the most appropriate adaptation solutions. These might include soft options (e.g. community awareness for behavioral change, better coastal zone planning; mangrove replantation; increasing the buffering capacity of coral reefs and mangroves); structural protection measures, provided

