



Community-Based Adaptation FAST FACTS

MOROCCO

Strengthening the resilience of the Tarmguiste Oasis ecosystem and increasing the adaptive capacities of the local community

Grantee: Association Espace Rural Tarmguiste

Type of Organization: CBO

Number of Participants: 100

Location: Oasis Tarmguiste, Rural Commune Asrir, Province Guelmim

CBA Contribution: \$50,000

Project Partners: *Programme on the Preservation and Sustainable Development of the Southern Moroccan Oases (Agency for the Promotion and for the Social and Economic Development of the Southern Provinces of Morocco / UNDP Morocco)*

Co-Financing: Southern Development Agency, \$60,710; Regional Directorate for Water and Forestry, \$2,520; Community in-kind contribution, \$11,468

Project Dates: September 2010 – March 2012

BACKGROUND

The Community-Based Adaptation Programme (CBA) is a five-year United Nations Development Programme (UNDP) global initiative funded by the Global Environmental Facility (GEF) within the Small Grants Programme (SGP) delivery mechanism. The UN Volunteers partners with UNDP and GEF/SGP to enhance community mobilization, recognize volunteers' contribution and ensure inclusive participation around the project, as well as to facilitate capacity building of partner NGOs and CBOs. In addition, funding is provided by the Government of Japan, the Government of Switzerland, and AusAID. The CBA's goal is to strengthen the resiliency of communities to address climate change impacts.

This CBA project aims to strengthen the adaptive capacities of the Tarmguiste community to climate change variability through improved water management and farming practices, strengthened agro-forestry system, and the implementation of a participatory policy dialogue at the local level. Located in the Western part of North

Africa, the Kingdom of Morocco has a population of 32 million people, 44% of which are rural. The economy mainly relies on agriculture, phosphate, and tourism. The country's geography, landscape and climate are very diverse. Morocco spans from the Atlantic Ocean to mountainous areas, through the Sahara desert, past the Strait of Gibraltar, and into the Mediterranean Sea. The climate is mediterranean in the north and becomes semi-arid to arid towards the continental regions and the south. The project site, Tarmguiste Oasis (province of Guelmim) is located in the south, by the Atlantic Ocean and on the edge of the Sahara Desert. It has a desertic climate, cooled a little by the Ocean's influence. Annual mean temperature varies from 19°C to 21°C. Precipitation is erratic and low at

70 mm per year. The community, of approximately 100 people, mostly rely on subsistence farming (fruits, vegetables, fodder) and extensive livestock (sheep, goats) for their livelihoods. Oasis farming and livestock breeding heavily depend on scarce natural resource management, as well as land and water. Livestock production depends on the fodder produced by the natural ecosystem. Since fodder production is limited by water scarcity, livestock production has put significant pressure on the surrounding mountainous ecosystem. Additionally, since the farming system relies on irrigation, livelihoods are extremely vulnerable to increasingly unfavourable climate changes that have led to dramatic decreases in local farming productivity, which in turn have led to diminishing income and community impoverishment. This has generated rural exodus and could generate more and more conflicts over rare resources.



The Tarmguiste palmeraie, is severely impacted by increasing temperatures, diminishing overall rainfalls, and increasingly intense episodes of extreme droughts, and destructive rainfalls).

CLIMATE CHANGE RISKS

Morocco is predicted to have increasing average temperatures (+0.6 to +1.1°C by 2020) and decreasing precipitations (-6% by 2015; 13% by 2045). Temperature variability, as well as the frequency and intensity of extreme events (rainstorms, heat waves, droughts) will continually escalate. Regional projections for the Souss-Massa region, neighbouring the project site, foresee a 30% reduction of rainfall in the wet season by 2020, and an 80% reduction by 2080. Climate warming will be +0.8°C for this region by 2020 and +2.2°C by 2080. The climate change experienced by the communities since the late 1970s and its amplification predicted in the near future is already undermining the delicate equilibrium that allows the oasis ecosystem to function properly and to support the community.

Contact information: Project Management Unit at cba@undp.org

304 East 45th St., 9th Floor New York, NY 10019

Tel: (212) 906-5006

PROJECT DESCRIPTION AND ADAPTATION MEASURES

This CBA project seeks to strengthen the resilience of the oasis ecosystem of Tarmguiste to climate change impacts and to improve the adaptive capacity of the local community. The project was formulated through a participatory process carried out by the CBO "Association Espace Rural Tarmguiste," involving the community members, and the local stakeholders. The project consists of the following components:

Baseline component: A community well is built, instead of having individual wells, to facilitate access to underground water, while promoting a collective and sustainable approach to water management.

Adaptation components:

- To foster adaptive water usage, a simple drip-irrigation system is connected to the community well, and is demonstrated on 4 ha of pilot farming parcels.
- To sustainably regenerate land and enable the root system to adapt to dry and poor soils, more resistant trees are being planted on the 4 ha pilot parcels. Additionally, traditional species, such as high-quality varieties of palm trees, almond, fig and carob trees are being rehabilitated by the CBA project. Lastly, the species that survive with 50% less water, such as the mix of sorgho and clover, are being tested to replace alfalfa as fodder.
- To protect the surrounding ecosystem in the face of intense rainstorms and to facilitate rainwater collection and infiltration in the underground water table on which oasis farming relies, forestry trees (argan, acacia, cactus) are being planted on 10 ha of surrounding mountains, combined with small community dams.
- To increase the adaptive capacities of the community, a comprehensive capacity-building program is being implemented to support the project activities. It is focusing on the sustainable collective management of water and land resources, arboriculture and rational management of crops, pastoral techniques and maintenance of the forest ecosystem.



Community volunteers and project team measuring plantation site

The Tarmguiste community is directly benefitting from the increased resilience of the ecosystem on which their livelihoods rely. This is happening through the implementation of sustainable plantations, food production increase for local consumption and for market, to generate income. Building on traditional solidarity and inclusive participation, their adaptive capacities are sustainably strengthened.

FOCUS ON...

Global environmental benefits: Adaptation in the Oasis - pilot solutions with a potential for upscaling

The oasis ecosystem, typical in arid zones, is a combination of scarce natural resources, human activity, and close interaction between the oasis and the surrounding very dry environment. Tarmguiste is a highly degraded oasis on which the CBA project fosters a global adaptation approach: natural resource management, farming techniques, and rocky mountainous soil regeneration that has been degraded by grazing and climate change impacts. Since Morocco has 44,000 ha of Oasis, the CBA project aims to inspire many more communities.

Community ownership and sustainability

To ensure that specific local needs and knowledge are covered, the community played an important role during the project formulation stage by identifying its own climate change-related problems and possible adaptive solutions. Community volunteers contribute their abilities, know-how, labour force, tools and land during the entire implementation phase: they install the irrigation system in experimental plots, plant resilient trees and seedlings in individual and community plots, build micro-rainwater harvesting dams, and participate in capacity building programs to promote resilient water and agriculture management practices. The project builds on traditional solidarity practices (the "touiza") and community-based natural resource management to ensure its sustainability. It will continue to give special attention to the participation of women and young people, as they have different needs and vulnerabilities to address, as well as different capacities, experience and knowledge to contribute.

Policy influence

Lessons learned from the project implementation stage will be promoted and integrated into climate change policies at the local, regional and national levels, as well as towards neighbouring oasis communities, through the support of CBA's project partners, such as the Programme on the Preservation and Sustainable Development of the Southern Moroccan Oases (Agency for the Promotion and for the Social and Economic Development of the Southern Provinces of Morocco / UNDP Morocco). Besides the project is integrated in the focal zone of the UNDP Africa Adaptation Programme, which will foster upscaling and dissemination.

For more information about CBA or CBA projects visit: www.undp-adaptation.org/project/cba

Further information, lessons learned, and experiences gathered from climate change adaptation activities globally can be found at the Adaptation Learning Mechanism: www.adaptationlearning.net

