MALI

Integrating Climate Resilience into Agriculture Production for Food Security in Rural Areas of Mali

LEAST DEVELOPED COUNTRIES FUND	
LDCF grant	$2,400,000
Cofinancing	$4,200,000
NAPA completion	December 2007
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Expected implementation start and completion	February 2011–January 2015
GEF Agency	Food and Agriculture Organization of the United Nations (FAO)
Other executing partner	Ministry of Agriculture, Livestock and Fisheries

Mali's climate is characterized by strong interannual rainfall variability. Since 1968, there has been an enhanced recurrence of dry years and prolonged drought, which has contributed to the increased vulnerability of rural people and the deterioration of the fragile ecosystems on which they depend. Climate change projections predict that Mali will face an even hotter and drier future; by 2025 average temperatures will increase by 2.71 to 4.51 degrees Celsius, while rainfall is predicted to decrease by 8 to 10 percent. These changes in temperatures and rainfall pose a direct threat to food security in Mali's agriculture-based economy.

Mali's National Adaptation Programme of Action (NAPA) reports that the country's agropastoral sector, which accounts for 75 percent of the population, will be adversely impacted by climate change. Crop yields in Mali may decrease by 5.5 percent and forage yield may fall by 20 percent. This would affect major food crops such as millet, sorghum, rice, and maize, as well as livestock. As a result, the proportion of the population vulnerable to food insecurity and hunger may rise as high as 68 percent. Small farmers and pastoralists are especially vulnerable because of their limited knowledge of and capacity to adapt to climate variability and change.

Problems not driven by climate change, such as unsuitable agricultural management practices and increasing population pressures leading to the expansion of agriculture into fragile ecosystems, as well as a lack of capital investment and positive incentives for sustainable development, are likely to be aggravated by climate change. Adaptation of the agriculture system is not an end in itself, but a means to address Mali's overall development objectives. A mix of both technical solutions, such as different crop and planting practices, and institutional solutions is needed to support rural communities in an integrated and effective manner.

Project Activities and Expected Impacts

The overall goal of the LDCF project in Mali is to lessen the impact of climate variability and change on vulnerable farmers and pastoral groups by lessening climate impacts on the natural resources that are critical to sustaining agriculture production and food security. The project addresses key adaptation activities in the agriculture and agropastoral sectors that are addressed in the NAPA and are closely linked with rural food security, namely: (a) adoption of improved agricultural management practices able to cope with climate change, (b) development of new varieties for crop/pasture systems adapted to climate variability, (c) rehabilitation of climate change–derived degradation, and (d) support for capacity building on effects of climate change.

The project's interventions focus on three vulnerable regions identified in the NAPA and on three different production systems: cereal, mixed crop/livestock, and a pastoral production system. The project comprises three components.

Component 1. *Piloting of improved climate-resilient agricultural practices*: This component aims to increase the long-term resilience of cropping systems and help reduce the impact of agriculture on the natural resource base. Improved soil and crop management practices are tested and adopted by small farmers as pilots, and existing stress-tolerant cultivars and species multiplied and distributed to farmers and agropastoralists, and the most promising varieties established in three different ecosystems and adapted to the most representative cropping system.

Component 2. *Capacity building and promotion of improved agricultural practices through Farmer Field Schools (FFS)*: This component helps increase skills and information about climate change and the associated risks for agricultural production and food security at the local, regional, and national levels. The FFS approach, a form of adult education that was first adopted in Mali in 1998, is used to support farmers' learning through field observations. Among other things, the project trains government and farmer trainers in adaptation practices for sustainable crop and pasture production, and community-based sustainable grassland management; prepares FFS learning materials on local adaptation measures; provides tools and trainings to 20,000 farmers and two pastoral communities to enable them to adopt more efficient soil, water, and input management practices; and develops information tools to facilitate the decision-making process of farmers through site-specific provisions of weather forecasts that improve farmers' ability to make adjustments in cropping management decisions.

Component 3. *Climate change considerations mainstreamed into agriculture sector policies and programs*: This component develops capacities for integrating interventions related to adaptation of the agricultural sector to climate change by supporting the cross-sectoral decision-making processes necessary for climate-resilient development. Agricultural issues and themes are integrated into environmental and climate change interventions. District-level policy makers, agencies, donors, and development partners (a) provide support and coordination of interventions and relevant processes to avoid overlapping activities, (b) identify gaps and opportunities to mainstream climate adaptation into agriculture sector policies, (c) mainstream adaptation practices in the agricultural biodiversity and pastoral sector and develop policy elements for pastoral communities, and (d) develop a set of good operational practices and lessons learned for enhanced adaptation to climate risk for dissemination and replication at the national level, and for supporting a shift from reactive response to proactive preparedness.

Synergies and Coordination

The LDCF project is coordinated with a number of initiatives in Mali, including the African Monsoon Multidisciplinary Analyses (AMMA); the project *Recherche Interdisciplinaire et Participative sur les Interactions entre les Ecosystems, le Climat et la Sociétés d'Afrique de l'Ouest* (RIPIECSA); the Institut de Sahel (CILSS) rehabilitation and coordination process; the *Community-Based Risk Screening-Adaptation and Livelihood project (CRISTAL)*, managed by the International Union for the Conservation of Nature (IUCN); *the Programme for Support to the Agriculture Sector in Mali (PASAM)*; the World Bank/United Nations Development Fund/GEF project Restoring Agricultural and Pastoral Productivity; and the International Fund for Agricultural Development/GEF project on community-based natural resource management and biodiversity conservation in the Inner Niger Delta.

For More Information
Global Environment Facility
1818 H Street NW
Washington DC 20433 USA
Tel: 202–473–0508
Fax: 202–522–3240

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www.theGEF.org