Integrated Approaches and Support for Innovative and Climate-Resilient Agricultural Procedures for Family Farming in Madagascar (DINAAMICC)

Project goals:

General objective (GO): To help reduce poverty, as well as food and nutritional insecurity in rural communities in the central highlands of Madagascar.

Specific Objective (SO): To help reduce the vulnerability of Family-operated Farms (FF) in the Central Highlands (CH) to the effects of climatic and environmental changes via the promotion of efficient, better suited, sustainable production systems based on agro-ecological practices.

Background:

Madagascar is the fourth poorest country in the world and one of the most vulnerable to Climate Change (CC). The rise in temperature, the increased variability of and decrease in rainfall, as well as the increasing frequency and intensity of hazards, particularly cyclones, have a major impact on agricultural production. In addition, there is significant human-induced degradation due to unsustainable practices, as well as the widespread use of firewood and charcoal to cover domestic energy needs. These problems are particularly acute in the project's area of operation, the Central Highlands of Madagascar, where the increasingly continuous use of cultivated soil, without long fallow periods, as well as progressively less restored organic matter, is altering the productive potential of the soil. Additionally, there is now an outbreak of biotic constraints. Finally, these regions are affected by some of the highest malnutrition rates in the country.

The agricultural sector, nevertheless, is vital for economic development and alleviation of poverty, as well as food and nutritional security. It is therefore necessary to look for solutions in order to adapt to these environmental changes, based on agro-ecological practices suited to the situations of the FFs. These practices will enable more sustainable and resilient agricultural systems that combine sustained production for food security, environmental conservation and compliance with the country's climate mitigation commitments. The aim is also to contribute towards demonstrating the possibilities and feasibility of an agro-ecological transition.

The project will operate in the high altitude areas (>1200 m) of the three central regions of the Highlands of Madagascar, more particularly one pilot area each in the following communes: Anjozorobe in the Analamanga region, Ampahimanga in the Itasy region and Mandritsara in the Vakinankaratra region. These areas were chosen because they show an increasing population density.

The theory behind the change:

The project will seek to resolve acute constraints faced by the FFs, to improve the range of relevant agro-ecological practices, to disseminate some of these and to enhance the intervention and innovation capacities of the relevant parties, in particular by developing links between research, development and the farming community.

Anticipated goals are:

Goal 1: Research and development actors will acquire and share an in-depth knowledge of the situations and constraints faced by the FFs, in particular due to CC, as well as knowledge of the benefits and constraints of certain adaptation practices that have been implemented,

Goal 2: The practices enabling FFs to become more resilient and sustainable within their natural environment will be co-developed (and co-evaluated) by the research and development actors together with the farmers and the Farmers' Organisations (FOs),

Goal 3: The relevant innovations will be promoted to a large number of FFs and FOs,

Goal 4: The capabilities of FOs and research and development actors will be enhanced in order to help the rural world adapt to climate and environmental changes .

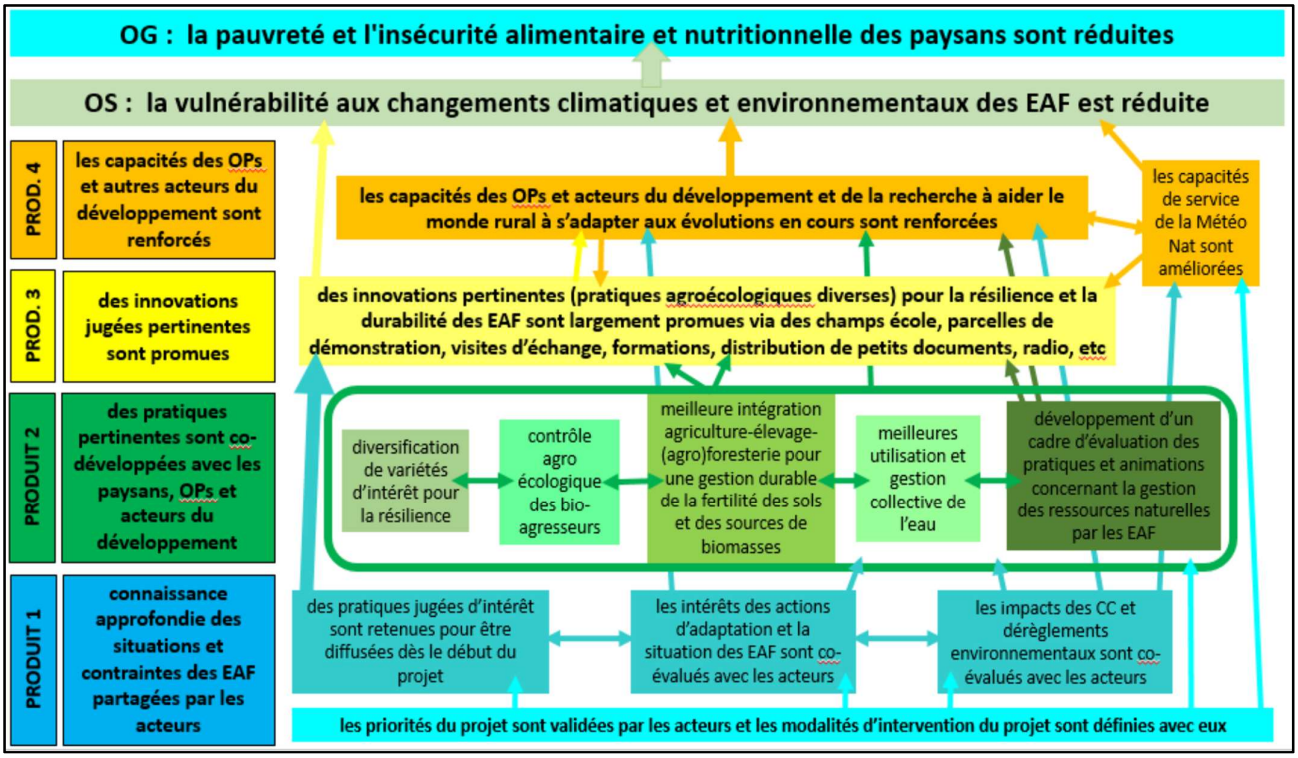


Figure: Impact flowchart

To this end, the project will adopt an integrated approach addressing the different components of FFs within their immediate environment (watershed). This will be a co-operative approach as it will be based on exchanges and observations between the farmers, FOs, NGOs, other development participants, as well as the main agronomic research organisations in Madagascar. These interactions began from the project design stage in order to define the project outline.

In each zone, an initial co-operative assessment will make it possible to target the priority issues, constraints and expectations of farmers, and to decide together which agro-ecological adaptation practices will be disseminated to the greatest number of people via field research schools, demonstration visits and training. Certain FF services will be improved: seed production, advice, dissemination of climate information and agro-climatological advice.

Different scientific skill-sets will be mobilised to work alongside FOs and NGOs in surveys, focus groups, workshops, co-operative assessments of farmers' plots, as well as reviewing benchmark FFs. Tracking innovation will make it possible to detect local knowledge that can be enhanced and disseminated. Joint research schemes will be set up to allow multi-criteria assessments of the effects of different practices over several seasons. Finally, models and simulations of FFs will also be used as a basis for discussion between participants. Initial workshops will make it possible to establish the operational measures of intervention and follow-up/evaluation with the development of a common

minimum analysis framework for the practices that have already been disseminated or still to be disseminated and the situations of the FFs.

The cooperation and interaction between the partners will allow for mutual enrichment concerning the apprehension with regard to the complexities of the reality, the understanding of farmers' "priorities and urgent needs" (often "vital") and the imperatives of the "long time" required for research.

Main activities:

The main activities of the DINAAMICC project are:

For Goal 1: (i) carrying out an in-depth inventory of the constraints suffered by farmers as a result of climate change and environmental disruption; (ii) theanalysis of the FFs' circumstances and assessment of their adaptation practices;

For Goal 2: (iii) improving knowledge and agro-ecological practices for pest control; (iv) identifying and promoting a diversity of interesting varieties to improve FF resilience and food supply; (v) improving integration of agriculture, livestock and agro-forestry, as well as water conservation and distribution practices (vi) the co-construction and cooperative implementation of a multi-criteria and multi-scale assessment framework for the promotion of agro-ecological practices and sustainable resource management by FFs in order to ensure their resilience and sustainability;

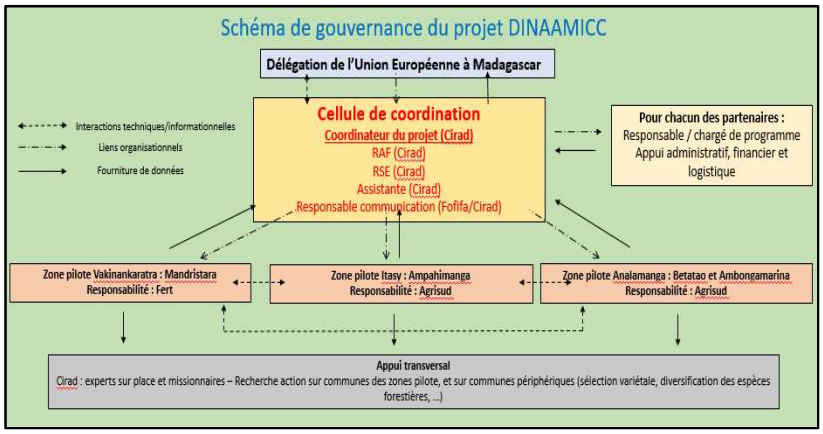
For Goal 3: (vii) dissemination (transfer) of knowledge concerning agro-ecological practices of interest; (viii) raising awareness of improved nutrition via the diversification and enhancement of production;

For Goal 4: (ix) strengthening the physical infrastructure of the national weather service and cooperatively improving its information services for farmers; (x) developing farmers' seed multiplication and distribution systems; and (xi) strengthening the operational capacities (small-scale infrastructures) of FOs and the capacities of farmers' own organisations, as well as for the research and development participants in order to understand the developments taking place.

Organisation:

Having been created to achieve the four main goals mentioned, this project will be implemented by partners who have already collaborated in the past. The coordination team will be composed of the Project Manager (agronomist/agro-meteorologist), a monitoring and evaluation officer, an administrative and financial officer and an assistant.

A "focal point" will be designated in each area of operation, acting as a facilitator and intermediary with local authorities and populations, to ensure that they are well-informed of the interventions and operations and can raise their expectations, and in order to facilitate the coordination of such operations.



Those responsible for specific subject areas (e.g. biotic constraints, agro-forestry, integration, livestock farming, climate information, water management and fish farming, fertility management and soil services) will ensure that the scientific activities and their interactions develop smoothly. Technical coordination meetings will take place at least twice a year.

A steering committee will meet every year, made up of the relevant stakeholders, a representative of the European Union (DUEM: Delegation of the European Union to the Republic of Madagascar and the Union of Comoros), representatives of the ministries concerned (agriculture, environment, research), the General Directorate of Meteorology and the National Nutrition Office.

Implementing organisations:

Centre for International Cooperation in Agricultural Research for Development (CIRAD).

The co-applicants are: farming organisations Ceffel and Fifata, the agro-agency Fert, the following NGO's: Agrisud International, APDRA Pisciculture Paysanne, AVSF, Partage and GSDM ("The Agro-ecology Professionals"), the National Centre for Applied Rural Research and Development (FOFIFA) and the Institute of Research for Development (IRD).

Other partners:

The General Directorate of Meteorology (DGM), Regional Directorates of the Ministry of Agriculture, Environment and Research, the centre of agronomic research for development (FIFAMANOR), the "Bean Platform" of Vakinankaratra (SMFT), the Regional Centre for Agricultural Vocational Training (CRFPA), the National Office of Nutrition (ONN) and its regional offices, as well as the University of Antananarivo.

Ultimate beneficiaries:

Agro-pastoral family farms and their formal or informal farmers' organisations.

Location:

Madagascar, Highlands of the Analamanga (Anjozorobe commune), Itasy (Ampahimanga commune) et Vakinankaratra (Mandritsara commune).

Funding: European Union: €4,150,000 (95%); consortium: €218,421 (5%)

Duration: 48 months (January 2022-January 2025)