



# Improving food security and agricultural incomes in Madagascar (ASARA-HOBA)

The Androy region, located in the south of Madagascar, is among the most disadvantaged areas of the country. This situation is largely due to severe climatic constraints, characterised by a semi-arid climate with low rainfall (averaging less than 500 mm per year), compounded by frequent dry winds and recurrent periods of drought. The soils, exposed to both wind and water erosion, are progressively being depleted. The region is regularly hit by acute food crises, locally known as «kere». The rate of chronic malnutrition can reach up to 49% (UNICEF, 2019).

## General presentation of the project



### General objectives

To improve household food and nutrition security by diversifying crops, while restoring the environmental capital of the Androy region. To this end, a gradual transition towards cultivated plots is envisaged, with priority given to the use of useful species such as fruit trees, timber, and firewood, etc. The project specifically aims to achieve two general objectives:

- To contribute to poverty reduction among rural populations in Ambovombe District.
- To contribute to reducing vulnerability to climatic, environmental and economic shocks.



innovative approach across southern Madagascar, by creating “farmers demonstration plots” accessible to the widest possible audience. These demonstration sites, which range from “farmer field school” plots to larger blocks covering several hundred hectares, are designed to be visible and demonstrative.

### Expected results

- R1. Innovative agricultural practices adapted to the local context are tested, disseminated and adopted in the Ambovombe District.
- R2. Farm-level support services are strengthened.
- R3. The Ambovombe Agricultural Service Centre benefits from capacity-building.
- R4. Large-scale plots (250 ha) are created to support farmers in the implementation and sustainability of collective projects.



### Specific objective

To strengthen the capacities of agro-pastoralists by enabling them to adopt agricultural techniques that promote secure, profitable and sustainable production through improved access to tailored support services.



### Intervention strategy

The intervention strategy is based on the concept of “agroecological blocks”, designed to scale up agroecological practices. The objectives of these blocks are the following:

- To create optimal agro-pedo-climatic conditions to promote sustainable food crops diversification and the development of local livestock farming, in order to improve food security.
- To establish resilient ecosystems that preserve soil capital (fertility, residual moisture) through the implementation of measures against wind and water erosion.
- To encourage on-farm experimentation in rural areas to structure commercial value chains (pigeon pea, millet, Lima bean, etc.), to develop biological control against crop pests, and to support seed production and small-scale livestock farming, among others.
- To facilitate large-scale dissemination of this



### Partners

GRET and the Agroecological Technical Centre of the South (CTAS), a Malagasy non-governmental organisation.



### Timescale

46 months (2014-2018).

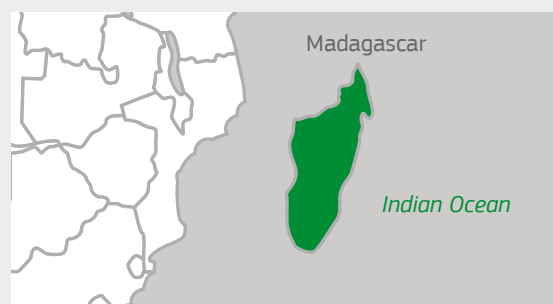


### Budget

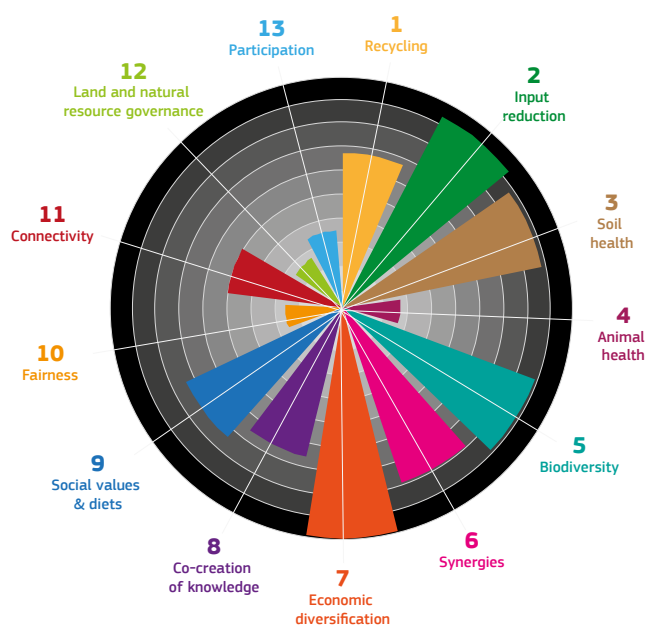
EUR 1,835,224 funded by the European Union (90%) and Catholic Relief Service (10%).



### Intervention area



## Agroecological classification of the project according to the 13 principles of the HLPE



### 1 Recycling

The project integrates the principle of recycling nutrients and biomass. Water conservation techniques are promoted to safeguard hydrological resources. Hedgerow planting, carried out by planting trees along plot boundaries and positioning hedges perpendicular to the prevailing winds, helps reduce wind erosion and enhances water infiltration into the soil. Another technique adopted is the planting of forage strips (brachiaria) along contour lines, which limits runoff and preserves soil structure. The project also emphasises the cultivation of legumes, which provide a dual benefit: they are used for human consumption while also protecting soils from erosion and solar radiation thanks to their significant biomass production. In addition, their decomposition contributes to restoring soil fertility by providing organic matter. Legumes also help fix nitrogen, thereby reducing dependence on chemical inputs, particularly when used in mixed cropping systems with cereals such as millet, sorghum and maize.

### 2 Input reduction

The project is fully aligned with the objective of reducing external inputs. Given the soil and climatic conditions in the Androy region, priority has been given to drought-resistant varieties that also have nutritional value for humans (pigeon pea, millet, Lima peas, moringa) as well as forage species (brachiaria, spineless cactus, etc.). Since 2002, GRET has undertaken actions to reintroduce millet in the Androy region. This crop, once widespread, had gradually been replaced by maize due to massive and repeated attacks by insects and birds. Millet was chosen for its low water consumption. The project aims to minimise the use of inputs by promoting local varieties that are better adapted to climatic conditions and soil characteristics in the Androy region, thereby

avoiding reliance on synthetic products such as fertilisers and pesticides. Cooking millet also requires little firewood, thus helping limit deforestation in a region where forest cover has deteriorated significantly over the past two decades. To reduce post-harvest losses (estimated on average at 30%) and to protect family harvests from rodents and insects, the project promoted the use of locally manufactured metal storage trunks and innovative post-harvest conservation techniques.

### 3 Soil health

The project plays a key role in preserving soil health. It emphasises soil restoration through the adoption of agroecological practices, notably by promoting specific cultivation techniques and crop varieties. The pedoclimatic context of the Androy region—characterised by sandy soils with little or no organic matter and exposed to dry, violent winds—is not compatible with mechanised tillage. However, the use of multifunctional shrubs, such as pigeon peas, anti-erosive forage strips, like brachiaria, and perennial cover crops such as canavalia (locally called konoky), enables degraded soils to be restored within two to three years. This creates favourable conditions for cultivating staple foods such as cassava, sweet potatoes, cereals, legumes, and cucurbits.

### 4 Animal health

The project supports small-scale livestock farming (local poultry, small ruminants) with a strong focus on animal health. This includes the production of nutritious forage crops, notably legumes, which contribute not only to animal health but also to soil fertility. The project also provides enhanced support to animal health services in collaboration with Agronomists and Veterinarians Without Borders (AVSF). Community-based animal health workers (CAHW) have been established to provide services such as medical prophylaxis, provision of basic care (treatment of common diseases, small surgical interventions), epidemiological surveillance and management of a veterinary drug stock.



## 5 Biodiversity

The project contributes to the improvement of biodiversity within ecosystems. The Androy region is facing a chronic shortage of quality seeds. The promotion of so-called “local” seed varieties has helped secure the availability of farmer-managed seed stocks that display sufficient genetic diversity to adapt to climatic hazards. These seeds also comply with minimum quality standards, such as germination rates, facilitating their local marketing. These efforts on seeds supports the preservation of plant diversity by responding both to climate variability and to household dietary preferences. In addition, the project actively encourages crop associations and rotations, which are presented as a cornerstone of agroecology.

## 6 Synergies

The project promotes synergies among the different components of the agroecosystem. Certain practices are recognised as having greater impact when implemented at the landscape level rather than at the plot level. Some of the agroforestry techniques promoted are designed at the watershed scale. Indeed, if not all plots are arranged to favour adequate water infiltration, it becomes impossible to limit runoff and, consequently, erosion. In response, GRET and its partners developed the concept of “agroecological blocks.”<sup>1</sup> In addition, biological control techniques against stem borer attacks were tested and disseminated. Repellent plants (*Desmodium uncinatum*) and trap plants (*Pennisetum purpureum*) were thus introduced into cereal crops to test the «push-pull» strategy. Moreover, the variety of millet promoted by the project is an «awned» variety that considerably reduces bird attacks thanks to its spiny husks.

## 7 Economic diversification

The project makes a significant contribution to the economic diversification of family farms. It is based on the recognition that conventional farming practices (ploughing, synthetic inputs, hybrid seeds) are both inaccessible to local farmers (lack of distribution channels, prohibitive costs, household over-indebtedness) but also unsuitable for the characteristics of the local soil and climate. By contrast, agroecological practices are presented as a relevant and effective alternative to improve yields, diversify production, and increase farm income. The dissemination of drought-resistant varieties, access to improved local seeds, hedgerow planting, and the maintenance of permanent vegetative cover all strengthen the resilience of ecosystems and household economies. Crop diversification, the reduction of on-farm and post-harvest losses, landscape management using exclusively useful species (fruit trees, timber, fuelwood), and the sharing of knowledge also contribute to strengthening farmers' resilience by fostering greater diversification of food sources and economic opportunities.

## 8 Co-creation of knowledge

The project places strong emphasis on co-creation and knowledge sharing. Farmer-to-farmer dialogue is at the heart of the project's design and implementation. This approach is based on an in-depth understanding of the sociological and anthropological realities of the Antandroy society, which is strongly influenced by clans and lineages. Exchanges are facilitated by a network of farmer-trainers responsible for teaching their peers agroecological practices. In addition, lead farmers are designated within each agroecological block to disseminate project-related information and prevent any inequality between participating and non-participating farmers. One of the project's strengths lies in its duration, which allowed the approach and practices to be progressively adapted to the local context through a research-action process involving agronomic research institutes (CIRAD), Malagasy organisations with expertise in agroecology (GSDM), seed valorisation (CTAS), and value chain development (FOFIFA), as well as the farmers themselves. Continuous collaboration with an Antandroy socio-anthropologist was a key element in fostering local authorities' support for the proposed innovations and in overcoming certain cultural taboos.

## 9 Social values & diets

The project respects social values and dietary patterns. It prioritises local crops and varieties while taking into account the food preferences of the population. Particular attention is given to the nutritional value of cultivated plants. For instance, a variety of sweet potato rich in carotene (vitamin A) was introduced for farmer-led trials. Similarly, millet varieties with higher levels of micronutrients (zinc, iron, calcium) were tested in partnership with CIRAD and FOFIFA. CTAS also works on developing threshing and dehulling tools for millet to facilitate larger-scale production of local flours. The approach adopted by GRET thus supports nutrition-sensitive agriculture.

## 10 Fairness

The project places little emphasis on the promotion of fairness. It is implemented in one of the most disadvantaged regions of Madagascar and has the explicit objective of improving household self-sufficiency in staple foods. It also seeks to contribute to reducing poverty among rural populations in the district of Ambovombe. However, the project focuses more on the physiological needs of the population (food and nutrition security) than on broader principles of social justice. Issues related to rights (right to food, land tenure) or structural inequalities are not addressed in the project documents. There are no gender-related objectives or indicators. The project does not assess the impact on women's workload, despite their significant involvement in agricultural activities, nor does it consider their participation in decision-making and dialogue spaces. The situation of young people, whose access to land is limited and who are often compelled to migrate to urban areas, is also overlooked.

1 GRET/CTAS (2018). Document de capitalisation sur l'expérience des blocs agroécologiques. p.70





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## 11 Connectivity

The project supports a connectivity approach. The argument of lower production costs is used to justify the choice of an agroecological pathway. By avoiding reliance on fossil energy and imported seeds, the project removes social and economic barriers to adoption. It even contributes to the restoration of degraded and fragile lands. Collaboration with CTAS and FOFIFA allowed for the development of a local seed sector. Since 2005, GRET has been working on the establishment of a network of local shops for the sale of local seeds at an affordable price<sup>2</sup>. This activity, intended to strengthen farmers' autonomy, also fosters connections among value chain actors. While the project seeks to enhance self-sufficiency, it also stimulates local exchanges, although these aspects are not elaborated in project documents. The sustainability argument also highlights the development of long value chains with the island of Reunion (for legumes) and with the rest of the country for mucuna used for livestock herding and aquaculture.

## 12 Land and natural resource governance

The project is partially aligned with the promotion of responsible natural resources governance. It actively supported the official recognition of certain local seed varieties. To this end, GRET and its partners promoted the adoption by Malagasy authorities of an alternative model for seed registration and multiplication, known as the Quality Declared Seed (QDS) system. This model enables a lighter certification process and the approval of seeds adapted to regional specificities, in contrast to the country's general seed laws. The QDS system tested in the Androy region thus facilitates the registration of seeds at lower cost while preserving their genetic heritage. By the end of the project, 37 local varieties had been characterised and registered. Issues related to land governance are not addressed, hindering the assessment of how land valorisation affects social dynamics.

## 13 Participation

The principle of participation is only weakly reflected in the project. It does not contribute to public policy formulation, except for its action in favour of the recognition of local seed varieties. Although it contributes to enhance local production and strengthen community self-reliance, it does not actively engage in advocacy for food sovereignty. Nor does it appear to be embedded in a territorial strategy led by local authorities or contribute directly to local development. Engagement at the political level therefore seems rather limited.

### SUCCESS FACTORS/CHALLENGES

- + The project was developed as a continuation of initiatives carried out by GRET in the Androy region since 2002. It is therefore part of a long-term trajectory while adapting based on lessons learned from previous projects and new knowledge.
- + The concept of «agroecological blocks» enabled a scaling-up of agroecological practices from the parcel to the landscape level (covering 1,337 hectares and benefiting 1,521 households).
- + The approach relied on co-construction, peer-to-peer knowledge sharing, and action research, which allowed better ownership and adaptability of the project.
- The social and political dimension of agroecology were only weakly addressed.
- The gender dimension is not considered in the project. It is worth noting, however, that this issue was fully integrated into the successor project AFAFI Sud (2020–2024). Moreover, a partnership with the University of Bordeaux 2 was established to develop an action-research project (ARPEGE) focusing on gender issues.

<sup>2</sup> It is worth noting, however, that these seeds are treated with chemical insecticides.