Context: Climate change and food insecurity

The dry zone in Myanmar and the Androy region in Madagascar feature phenomena that are representative of numerous regions in the world affected by climate change: low and erratic levels of rainfall, desiccating winds, erosion, low infiltration and non-retention of water during heavy rains in bare surface soils, soils with a low level of organic and mineral matter. This situation is increasing the economic hardship and food insecurity of farming families. The Androy region has the highest rates of poverty (94%) and food insecurity (68%) in Madagascar.

The solution: agro-ecology

In both countries, GRET is promoting agro-ecological practices aiming to improve the fertility and water storage capacity of soils, protect crops from the drying effects of wind and sun and increase the resilience of agricultural production systems. These solutions – based on farmers’ know-how, the use of biological diversity and knowledge of ecosystems – avoid the use of chemical inputs. The techniques being promoted are crop combination and rotation, ground cover, agro-forestry, hedging, integration of livestock farming (fodder production) and biological control.

In Myanmar, these practices are preceded by the construction of mini stone dams enabling retention of sediments, water and water infiltration. Working with farmers over a 3-year period, these practices are implemented at regional level in adjacent plots of 10 to 20 hectares, with joint management of the land, which encourages solidarity between families.

In Madagascar, where more than 10,000 farmers have adopted these new practices, the development and improvement of local varieties suited to the environmental conditions is supported by establishing marketing channels for these seeds. GRET cooperates with a local NGO it set up called the Southern Agro-ecological Technical Centre (CTAS), the national research bodies and structures within the Ministry of Agriculture.
Initial results produced in the field

For small farmers in arid areas, agro-ecology represents a key means to mitigate the impacts of climate change. We can observe:

- **Improved fertility of the land** thanks to the accumulation of fertile sediments upstream of the mini dams. This generates diversification of crops and planting of more demanding crops. These changes have a direct positive impact on food security.

- **Increase in the resilience** of the population to climatic accidents.

- **Decrease in the pressure exerted by deforestation** on natural resources via production of timber in agro-forestry systems, especially in Madagascar.

Challenges and questions

For these techniques to be viable, there must be:

- **Fast results in terms of production, income and food security**, even if some components of agro-ecology can aim for longer term impacts

- **Adaptation of legislation** on planting of seeds.

- **Technical support over the long term** as new technical difficulties could arise over time; **assistance to farmers** to finance investments for implementation

**Exchange networks between groups of farmers** to enable gradual building of knowledge and know-how.

Recommendations

- **Support agro-ecological approaches**, including supporting the adaptation of certain legislation (on the production and distribution of local seeds enabling improved resilience to climatic hazards)

- **Orient agricultural policies and donors less towards promotion of Green Revolution agriculture**, with subsidies for chemical inputs or the use of fragile traditional varieties.

- **Promote agro-ecological transition** of family farms as the best way of increasing food security for local populations and resilience to climate change, as opposed to the concept of intelligent agriculture for climate.

- **Development of indicators to** monitor the impacts of agro-ecology in terms of adaptation and mitigation of climate change, through joint research and action work by researchers, development practitioners and farmers

Further information:

On GRET’s position on agriculture for Cop 21: [www.gret.org/wp-content/uploads/Lapport-de-lagro%C3%A9cologie-en-zones-s%C3%A8ches.pdf](http://www.gret.org/wp-content/uploads/Lapport-de-lagro%C3%A9cologie-en-zones-s%C3%A8ches.pdf)

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