AGROECOLOGY CASE STUDY

Strengthening the productive potential of farmers

Strengthening the productive potential of men and women farmers in arid and poor areas of the Sahel: The case of efficient and accessible agroecological practices in the county of Loga, Niger

The county of Loga is considered the most underprivileged in the Dosso region and one of the poorest in Niger. A community rehabilitation program, after the food crisis of 2012, ranked the county as the most vulnerable area of all five departments that make up the Dosso region.

The annual cereal deficit rate of this area varies between 60% and 90% depending on the year. Agriculture, which is the main activity (accounting for 90% of the population), is subject to several constraints and other natural climatic hazards (low rainfall, parasite pressure, etc.), causing an exodus of the workforce to urban centers, both within Niger and abroad. The literacy rate is low, which constrains the self-management of development activities by the communities.

In environmental terms, the commune of Loga remains strongly affected by deforestation and the influence of poor agricultural practices. Water and wind erosion accentuate the degradation of natural resources. This makes Loga one of the areas classified as "high environmental risk areas".

Despite the existence of the Communal Development Plan (CDP), updated in 2012, which benefits the commune, the people have not obtained suitable responses to their concerns. Certain fundamental rights, such as the rights to food, education and health, are not yet fully gained by the population. To address these problems, a project combining several agroecological techniques (Agroforestry, Zai-compost, Halfpipe) was implemented in this area since 2013.

THE PROJECT

Location of the project

The project is located in the commune of Loga, which covers an area of 1,700 km^2. The commune of Loga has 87,211 inhabitants. This population is composed of people from the Djerma, Peulh, Hausa and Tuareg tribes, distributed across 65 administrative villages and hamlets.

Size of the project

Experiments have reached 8 producers in a village with farms varying between 0.75 ha and 1.25 ha in rainfed production of millet. The agroecological practices were organic fertilisation by spreading manure and creating hedges around the farms by planting Doum, Acacias and other species with high economic value. The project also covered land recovery through "Banquètes" and the planting of trees on 52 ha and testing of the "Zai" pits on half a hectare.

The problems identified in the project

1. Intense land degradation related to water and wind erosion: This degradation makes Loga one of the areas with high environmental risk. In addition, the rainfall patterns are a threat to the practice of rainfed agriculture. The cumulative rainfall in recent years does not allow small producers to fully enjoy the use of their farms. The yield per hectare for food crops is less than one tonne (millet, sorghum), forcing more and more farmers to adopt cash crops with lower rainfall requirements (cowpea, sorrel, sesame), exposing them to chronic food insecurity.

2. Weak capacity of training organizations: As an underprivileged area, Loga receives little support from the few existing training organisations. And this support does not always meet the expectations of the people facing so many challenges in agriculture and food.

The objectives of the project

The project envisages the adoption of appropriate agroecological techniques to ensure a diverse, healthy and sufficient food supply to rural households in the region.

The solutions offered by the project

The solutions proposed in the project are:

- Establishment of a village nursery;
- Training of farmers on cultivation techniques and alternative methods of pest management;
- Recovery of degraded land.

Intervention strategy

The project approach and strategy put farmers at the centre of the sharing of practices. So, for a better assessment of the results of the project, a baseline was established in the intervention area, followed by the identification and targeting of beneficiaries in the project intervention villages. The following activities were carried out:

- Awareness campaigns on the importance of
- agroecological practices;
- Training of producers;
- Recovery of the land through Food and Cash for Work;
- The establishment of monitoring committees for the protection of recovered sites and pilot farms;
- Training of target groups.

Beneficiaries

Through advocacy, 10 pilot producers have adopted organic fertilisation practices combined with the hedging of rain-fed farms (assisted natural regeneration, planting Doum palm nuts and other species). In the village of Badoko, it is estimated that more than 25% of producers have adopted organic fertilization practices and between 2% and 5% are now planting Doum palm nuts.

Results and benefits of the project at local and national levels

A total of 5,216 gum trees were planted on the 52 hectares of recovered land. To speed up the restoration process, the ridges were seeded with fodder crops. A monitoring committee has been established and is functioning to educate communities to prevent premature use of the site. By the end of the phase, the plant recovery rate was 75% on average. Income from family involvement in land recovery allowed access to grains during lean periods.

These plants were distributed by the village committee to producers in three villages (Badoko, Beri koira and Sabara). Note that these plantations are in addition to 10,000 plants planted in 2013, making a total of 19,500 seedlings planted on family farms during this phase of the project. The planting of Doum palm nuts was done in May 2014 by 10 producers and a few farmers in the locality. Each producer has received four bags of Doum palm nuts with 1,400 nuts per bag, with a total of 56,000 nuts seeded by pilot producers. Four other producers adopted this technique spontaneously on their farms.

The nuts were collected by the people themselves, earning them 4,000 CFA Francs (FCFA) per full bag. Labour for planting was paid at 2,000 FCFA per bag of nuts. After the first year of the campaign, the recovery rate was estimated to be between 65% and 90%.

The multiplier effects of the project

The creation of village nurseries for the development of agroforestry can play an important role in the extension of certain agroecological practices. The main objective is to achieve one agroforestry nursery for every village. This sustainable initiative is a step towards the re-vegetation of desert areas of Niger.

In addition, it should be noted that the legacy of self-management by farmers in the area has facilitated knowledge transfer and adoption of agroecological techniques such as assisted natural regeneration (ANR), manure spreading and the planting of forest species on farms.

Also, the integration of women in the nursery gardener groups has facilitated their mobilization and their support of these local reforestation efforts. The use of recycled bags as pots in nurseries helps reduce activity costs and clean up the environment.

The challenges and opportunities related to the project

- Direct planting of Doum palm nuts on farms is an excellent practice to promote hedging in the area. However, direct planting, without perforation of the nut, does not allow moisture to reach the nut, leading to slow germination. Action-research should continue to explore other techniques. It appears from the testimonies of some pilot producers that farm productions increased over 20% between 2012 and 2014 thanks to the use of organic fertiliser and hedging.
- For organic fertilization of farms, the lack of means and adequate transportation (carts and draft animals) does not allow for the transport of large amounts of manure.
- The creation of village brigades to protect plants reduced the cutting of protected species in farms; a good collaboration between the village brigade and the environment service could make the initiative more efficient.
- In terms of hygiene and sanitation issues, the construction of latrines is a reliable way to reduce open-air defecation, but there must be a partition to facilitate women's access to latrines at any time. Indeed, for some beneficiaries, latrines are exposed and left without walls or protective fences. Also, training students and households on proper use and maintenance of the latrines is essential.
- The establishment of a village brigade to protect Doum palm plantations is necessary, even for the recovered land, in order to secure the gains. This is a key aspect of the sustainability of these developments. This recommendation is taken into account through the village supervisory committee that ensures the protection of recovered sites.

N	Surname and Name	Village	Surface area (hectares)	Crop	Manure expenditure (FCFA)	Techniques	Harvest (kg)			Evolution	Method
							2012	2013	2014		
1	Zakari Mamoudou	Badoko	1	Local millet	10000	Thinning to 4 plants, improved clearing	250	600	850	From 25 bales to 85	Homo-geneous spreading
2	Seibou Boubacar	Badoko	1	Local millet	14500	Thinning 3 to 4 plants, improved clearing	300	450	670	From 30 bales to 45	Homo-geneous spreading
3	Amadou Kountché	Badoko	1,25	Local millet	10000	Thinning 3 to 4 plants, improved clearing	400	470	750	From 40 bales to 75	Homo-geneous spreading

Table showing an overview of the increase in production by beneficiary farmers

CONCLUSION

The activities included in this project aim to enhance the productive potential of smallholder farmers, offering them accessible and sustainable techniques as an alternative for production. In this experiment, each producer decides within his farm which cultivation techniques to apply, what species to plant and what goal to pursue in the short and medium term.

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