



case
study



Mauritania: Small-scale surface irrigation for food security

Background

Mauritania, which has a population estimated at 3.5 million,¹ is located in west Africa. It is a sub-Saharan country that is highly dependent on imports of consumable commodities to meet the demand of its population (more than 70 per cent of food consumption needs are met through imports), thus making the country very vulnerable to recent food price volatilities.

The majority of the population (65 per cent) provides for themselves through traditional agriculture and livestock farming and are heavily dependent on the rainy seasons. However, climate hazards, in particular periodic droughts, have sharply curtailed opportunities for agricultural production and animal husbandry in recent years.² As a result of unpredictable seasonal rains and climatic conditions, the majority of the population remains chronically vulnerable to food insecurity and malnutrition. The situation is further complicated by encroaching desertification and competition for meager resources, which leave communities in a perpetual state of food insecurity and poverty. Households' vulnerability is further aggravated by limited access to safe drinking water and widespread malnutrition.

Action

The Mauritanian Red Crescent, in cooperation with the Spanish Red Cross and with funding provided by the Spanish Agency for International Development Cooperation (AECID), has successfully implemented a project on small-scale surface irrigation for food security in Boghé. The project ran from February 2010 to January 2012 and had a total budget of EUR 437,000.

The project was implemented in Boghé, a department (*Moughataa*) along the Senegalese River basin, in the Brakna region. This department, which had an estimated population of 80,460 at the beginning of the project (early 2010), had been selected for the following reasons:

- It is situated along the Senegalese River basin, with rich alluvial soils deposited by the waters of the river, and water is available all year round.
- It is well suited to horticultural crops, traditionally maintained by women, many of whom are small-scale producers.
- It has functioning cooperatives, which were put in place with the support of the Mauritanian authorities – the cooperatives are expected to improve the living conditions of their members, create jobs and persuade inhabitants to remain on their lands.

¹ United Nations Population Fund, State of World Population 2011, New York, 2011.

² Oxfam Mauritania, available at: www.oxfam.org/en/development/mauritania

Introducing irrigation in plots alongside the river has great potential to boost yields and guarantee a better production of fruit and vegetables, which will enable people to diversify their daily meals and hence have a positive nutritional impact on their diet.

The aim of the project was to improve access to and the availability of food products. It was designed to scientifically identify the socio-economic and technological opportunities for developing broadly diversified crops in vegetable gardens on the alluvial soils of the Senegal River, at a low operating cost. This in turn aimed to ensure the viability of cooperatives for women and small-scale producers. It was also intended to improve water access for local farmers on a lasting basis and boost income from the sale of surplus agricultural commodities. The project was implemented along the Senegal River in Boghé (Brakna), ensuring the availability of water for the proper upkeep of plantations via improved techniques for the exploitation of poorly developed water resources.

The project included a motorized pump to bring river water to crops. Beneficiaries were also encouraged to keep part of

the harvest for their own use and sell the leftovers, therefore guaranteeing a stable income.

The 957 direct project beneficiaries, grouped together into 20 cooperatives, had to meet the following criteria in order to participate in the project:

- have a plot with light ground larger than 0.25 hectares (ha) and smaller than one hectare
- fence their plot
- be familiar with irrigated farming (market gardening)
- be able to afford a contribution of 10 per cent for installing irrigation equipment.

The number of indirect beneficiaries was estimated at more than 12,000, who benefited through the availability of nutritious fruit and vegetables.

Gender sensitivity

The project activities were geared towards facilitating women's access to land and improving their economic conditions. As women are traditionally responsible for vegetable gardens while men maintain crops, such as rice and sorghum, the project mainly benefited women, giving them greater economic independence.



Environmental sustainability

The irrigation systems located along the banks of the Senegal River do not harm existing aquatic ecosystems because the water flow rate is sufficient to cover crop water requirements. Likewise, the soil is conserved and properly maintained because agricultural practices are based on organic farming. Additionally, a protected vegetation area – using local plants such as jujube tree or acacia – was created in a circumference around the market-gardening perimeters – thus enabling ground and floral regeneration to take place.

Training

Team members received different forms of practical training aimed in building their capacity and boosting production. Courses covered the following:

- Organization of cooperatives and associations – beneficiaries learned how to use tools for agricultural financial management and planning, microcredit planning and market access.
- Irrigation doses – as water control is essential in irrigated agriculture, beneficiaries were trained in the proper use and upkeep of a California-style irrigation system, which brings river water to the plots via 50 millimeters (mm) or 63 mm PVC tubes; they were also trained in plant water requirements from sowing (transplanting) to harvest and in the maintenance and upkeep of motorized pumps to guarantee pump durability, thereby ensuring maximum benefit for producers.
- Agronomic techniques and practices (market gardening) – special pilot plots were developed to teach beneficiaries new techniques for prevention and plant care (preparation of organic fertilizer (composting), sowing, plantations and tree care, development of protective fencing, hedgerows and windbreaks, identification of plant diseases and pests, etc.). This helped beneficiaries in enhancing their capacity to boost yields by increasing crop diversity, improving agricultural productivity and mastering crop-farming techniques suited to the region.



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However, as some training courses were not offered early enough during the project implementation phase, the first year's productivity was lower than expected.

Shop/office

A shop/office was opened to provide beneficiaries with various services, such as loans for purchasing inputs such as water piping and for facilitating product marketing via the acquisition of spare parts or the provision of advice on agricultural techniques.

Results

The socio-economic monitoring forms showed that most cooperatives planted hothouse seedlings late in 2011 and that yields were good on average. Farmers need to be encouraged to rely on organic materials rather than mineral fertilizers, in order to boost yields in ways that are also more cost effective. Even though the project ended in January 2012, it would appear that beneficiaries are continuing to tend their plots. The cooperatives appear to have the necessary resources to maintain the irrigation system and replace motorized pumps.

The irrigation project helps to guarantee beneficiaries a stable income regardless

of climate hazards. It gives them access to fruit and vegetables for their own personal use and allows them to sell some produce on the market. Before, consumers could only find onions and cabbages on the market, but with irrigated gardens, it gives the region the advantage of getting a greater variety of produce, such as eggplants, pumpkins, bissap, green beans, watermelons, bananas, mangoes and lemons. This also gives the beneficiaries the added value of having something different to sell and hence a better opportunity to secure a source of income. Aissatou, a beneficiary of the Boghé project has made this clear by saying: “Before the project, I got up every day not knowing how I was going to feed my seven boys. With the help of the Mauritanian Red Crescent and the Spanish Red Cross, they have enough to eat every day, I have money to cover other expenses and I can send the boys to school.”

Another voice of the Boghé project beneficiaries is Tram, one of the cooperative directors, who says: “Before the project was implemented, I lived in another village, further away from the river, and depended on the rain to grow crops. This year, thanks to the water pump, I won’t be so affected by the drought.”

The project also lets beneficiaries clarify the legal status of the cooperatives through property title or the legalization of rural concessions, primarily for the benefit of women.

The project evaluation, measured against a baseline that was developed at the start of the project in the areas of nutrition, agricultural productivity, farming techniques, livestock production and the various sources of income and expenditure derived from household food security strategies, will reveal the level of impact on direct and indirect project beneficiaries over the project timeframe.

The project has yielded positive results but could be further improved through additional training and greater access to micro-credit, which would enable cooperatives to further diversify their crops and work out marketing strategies for better market positioning. According to the president of the cooperatives’ union of Boghé, “the project is well-functioning, the cooperatives are well organized, beneficiaries have made enough money to buy small pumps or small ruminants.”



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