

Case Study G: Re-greening Africa's Sahel Region

What is the problem?

The Sahel has long been plagued by droughts. The major droughts of the 20th century occurred during 1910-14, 1942-49, 1968-73, and 1982-84 followed by persistent dryness through to 1993. More rain fell during the decade from 1994 to 2003, but conditions remained far drier than the period from 1930 to 1965. The impacts of the droughts extended beyond decreased amounts of precipitation to human, livestock and tree deaths, labour migration and social network breakdown. This resulted in an acute human and environmental crisis in the region, especially in Niger and Burkina Faso. Consequently, there was an urgent need to address the situation which, for many local people, meant re-claiming their land from the encroaching desert and intensifying agricultural production or leaving the land entirely.

Restoration Approaches

During the 1960s and 1970s, donor-funded anti-desertification programmes focused unsuccessfully on active restoration such as through machine-constructed earth bunds to improve soil and water conservation. For example, between 1962 and 1965, machines were used to construct earthen bunds on 120,000 ha of land in Burkina Faso. However, the project was conceived without the farmers' involvement. Therefore, they did not maintain the earthen bunds and sometimes deliberately destroyed them. The project stopped prematurely in 1965. In 1977 the Rural Development Fund, funded by multiple donors, once again constructed graded earthen bunds to reduce erosion. Unlike the first attempts, these were laid out in small blocks of cultivated village fields (30-60 ha) and treated an estimated 60,000 ha of cultivated land. Once again, farmers destroyed or breached the earthen bunds because they prevented water runoff from entering their fields and nourishing their crops. Within three years, most of the bunds had disappeared.

In the 1980s, two techniques based on indigenous knowledge and innovation by farmers themselves spread rapidly in Burkina Faso. The first was the replacement of the earth bunds with stone bunds, which were constructed by farmers along the contours by using a simple hose-pipe water level. The stone bunds slowed water run-off and thus increased infiltration, as well as preventing organic matter from being washed out of the plots during the rains. The second was the creation of planting pits (locally known as *zai*) on severely degraded plots. These circular pits filled with organic matter increased water infiltration and nutrient availability for the crops planted in the pits. Depending on rainfall levels, planting pits enabled farmers' yields to rise from almost nothing to between 300 and 1500 kg per hectare.

In Niger, about 5 million hectares of agricultural land were regreened through the farmer-managed process of natural regeneration, using improved, local agroforestry practices. Earlier, farmers perceived trees to belong to the State and had little incentive to manage them. However, when governance weakened through political instability and forestry services declined, farmers began claiming ownership of the trees on their farms, self-organising to protect their trees from livestock, and reviving traditional low-cost agroforestry practices. Increased tree densities increased grain yields, fodder availability, fuelwood, and timber and non-timber products, with the net result of

improving food security and incomes. Farmers adapted new tree protection techniques to their own situation and objectives.

Questions for discussion

1. How would you describe the opportunities and limitations for the restoration of degraded farmland in the Sahel region?
2. Would you describe the farmer-managed natural regeneration as the solution to all problems facing residents of the Sahel? Discuss its advantages and disadvantages

Further reading

Reij, C., Tappan, G. and Smale, M. (2009) Re-Greening the Sahel: Farmer-led innovation in Burkina Faso and Niger. Chapter 7 in Spielman, D.J. and Pandya-Lorch, R. (Eds.) *Millions Fed: Proven Successes in Agricultural Development*. International Food Policy Research Institute (IFPRI), Washington, D.C. Available at:
<http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/130817>