

Impacts of food security and biodiversity

SWC techniques allow gains in grains and straw of several hundred kilograms per hectare. Thus, they contribute structurally to improving food security, despite population densities exceeding 100 inhabitants/km².

The surplus straw allows for integration between farming and stock breeding, which makes organic amendment a sustainable practice.

Surveys conducted on the plots of 700 households also showed greater biodiversity and trees of large diameter in plots where SWC techniques were used.



Renewing the discourse and guiding public policies

This type of studies has focused on the northern part of Burkina but could be enlarged to other zones of the Sahara. The studies done in Niger give also encouraging results.

Highlighting scientifically this « Invisible Green Revolution » due to the dissemination of sustainable land management techniques leads to lay the foundations of a more optimistic position, i.e., it may be profitable to invest in natural resource management. The techniques evaluated here are simple but they require start-up investment which is often beyond the reach of farmers and pastoralists. Once implemented, they are sustainable as shown by these results which were collected 10 years after the support projects have been completed.

These results pave the way for a support to the orientation of sectoral policies for development. Findings for Mali and Senegal are expected soon and will certainly help in taking decision for investment agricultural policies at both national and sub-regional levels.



Partners : the Netherlands cooperation, Swiss cooperation USAID, French Cooperation

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SAHEL STUDIE BURKINA FASO

Invest in sustainable Land management

An economic approach for evaluating profitability of natural resource management

Since the mid-90s, the resources allocated to the rural sector have been declining whereas pressures on natural resources have been growing (demography and climate change).

A series of studies initiated by CILSS, in 2006, and named « Sahel Studie » focuses on estimating investments made in the 80s and 90s through an economic approach: **what level of profitability of those investments?** Can the promising experiences contribute to re-mobilize development actions for natural resources in the Sahel?

A scientific team in the field

In Burkina Faso, a team of researchers, under the supervision of a committee of international scientific personalities, has been mobilized to assess the economic effects of techniques disseminated through projects in the 80s and 90s.

This team centred its investigations on the central plateau of Burkina, a Sahelian climate. 700 farm households were surveyed in 3 provinces.

The team conducted comparative analysis between areas with and without SWC techniques as regards natural resource management according to a rigorous statistical approach.

The internal rate of return (IRR)

The IRR is the economic indicator used to estimate the economic relevance of an investment or project. Calculating the IRR is a bit complex but can tell whether an investment is profitable or not.

When the IRR exceeds the discount rate or long-term bank rate, we can deduce that the project is profitable.

Stone bunds



Stone bunds are stone walls along contours. They limit erosion and retain soil nutrients. They help cushion the effects of drought by conserving soil moisture longer.

Comparison results between areas with and without contour stone bunds technology:

+39% of grain yield (stone bunds alone) to
+118% (stone bunds + zaï)
+21% additional straw (stone bunds alone) to
+56% (stone bunds + zaï)
27% of internal rate of return (stone bunds alone) to
95% (stone bunds + zaï)

Gains in grain yields correspond to at least 200 kg per hectare more.

Half-moon

Half moons are depressions made following the contours and enriched with organic amendment. They allow re-cultivation of degraded lands and limit the effects of drought.

Comparison results between areas with and without half moons:



+112% of grain yields compared to fields without half moons
+49% additional straw
145% of internal rate of return on average

Half moons have an excellent rate of return. Comparable results were measured in the Sahel Studies, in Niger.

The "Zaï"

The zaï is a technique that involves digging pits on infertile soil with the addition of organic amendment made by the peasant farmer. It allows re-cultivation of degraded areas and limit the effects of drought.

Comparison results between areas treated with and without the zaï technology:



+69% of gains in grain yields
+50% additional straw
93% of internal rate of return (IRR) for sorghum produced with the zaï technique.

Gains in yields correspond to more than 300 kg of grains per ha.