



FOSTERING RESILIENT SILVO-PASTORAL PRACTICES IN SENEGAL: THE PROMOTION OF ENRICHED CLOSED FOREST AREAS IN THE GROUNDNUT BASIN

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ACTION AREA: Adaptation

FOCUS AREA: Delivering

COUNTRY: Senegal

SECTORS

INVOLVED: Forestry, Agriculture

TIMEFRAME: 2008-ongoing

CASE SUMMARY: The implementation of silvo-pastoral inter-village spaces (see Figure 1) is an endogenous initiative developed by local communities in the groundnut basin of Senegal. Its aim is to address the combined effects of climate change and resource degradation (Sanogo et al., 2014). According to Touré and Kremer (2002), the concept of 'closed area' corresponds to all consensual measures taken by local populations to rehabilitate and maintain the silvo-pastoral resources of a given area of their land in order to produce ecological, socio-economic and cultural benefits in a sustainable manner. This results in restricted access to and use of resources within the area for a certain period of time to allow for the regeneration of the vegetation and rehabilitation of ecosystem services.

The main objective of the initiative is to improve the livelihoods of vulnerable rural populations living in ecologically fragile areas of Senegal through the sustainable management of community inter-village silvo-pastoral reserves. This practice has also shown to improve soil carbon sequestration and the resilience of local species (Diouf et al., 2014). Forest products (wood and non-wood products) from these areas increasingly provide sustainable sources of incomes for rural populations. In the groundnut basin, there exist a number of species and products with high socio-economic potential. In addition, these areas provide environmental services, for example through reducing erosion and improving soil fertility (Sanogo, 2011).

The initiative constitutes a good practice due to the strong involvement of the local population, the enablement of the participation of women in all activities, the effectiveness of the measures taken as well as the potential for replicability of the latter.



Figure 1: A silvo-pastoral inter-village space (ESPIV) in the groundnut basin (Bihibindi, 2010).





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BACKGROUND: Senegal faces several risks related to climate change. It is mostly threatened by sea-level rise, floods and coastal erosion (World Bank, 2019). Furthermore, tropical and woodlands forests are being negatively affected by climate change, which presents a serious economic and ecological challenge to the country. Senegal's forest areas are vitally important, as they represent about 45% of the country's land area and provide a habitat for more than 1,000 animal and 2,000 plant species. Increases in temperature, droughts, bush fires and long-term rainfall declines have significantly affected vegetation and soil quality in two-thirds of northern Senegal according to a study conducted between 1982-1984 and 1994-1997 (USAID, 2012). The aforementioned climatic changes have led to high mortality rates of forest vegetation and a 30 % reduction in biodiversity (ibid). Biodiversity loss strongly affects the poorest and most vulnerable people and communities as they suffer from a loss in food security, health and income opportunities (Sanogo, 2011). In addition to the climatic hazards that threaten the country's forest stands, anthropogenic stressors also play a significant role in deforestation. Inter alia, the clearing of forest areas for grazing and land cultivation, lack of policy enforcement and forest resource management and high demand for biomass and timber contribute to a decline in forest land cover (USAID, 2012).

Senegal has recognised the threats that climate change is posing to its territory and people, and participated in international efforts to counter these threats. It has signed and ratified the United Nations Framework Convention on Climate Change (UNFCCC). In 2006, it has prepared its National Adaptation Programme of Action (NAPA), in which the country has outlined its vulnerable sectors as well as adaptation options (see Ministère de l'Environnement et de la Protection de la Nature, 2006). In 2015, Senegal developed its Intended Nationally Determined Contribution (INDC), which outlines the contribution of all sectors to the global effort to reduce greenhouse gas emissions and to adapt to climate change (Ministère de l'Environnement et de la Protection de la Nature, 2015). Notably, the strengthening of the country's ecosystems as well as the improvement and adaptation of crop and forest production are adaptation goals listed in Senegal's INDC. The country has signed the Paris Agreement in 2016 and has been developing its Nationally Determined Contribution (NDC) since 2017.

Despite multiple efforts of the government and development partners to reverse the deforestation process in Senegal, forest loss remains a concern. Conservation initiatives are often based on law enforcement without taking into account the local socio-economic context (such as, for example, the lack of motivation of young people to get involved in the management of the territories). Thus, more attention has been directed towards the identification of solutions adapted to the context of poverty alleviation and financial resource scarcity. In the groundnut basin - which is the first agricultural zone in Senegal, covering the Fatick and Kaolack regions in central western Senegal - one of the most strategic measures to restore the natural environment and protect production systems remains the promotion of enriched closed areas.

Thus, as part of a participatory process, the project 'Strengthening local strategies for the management of inter-village silvo-pastoral areas' was initiated by the National Forestry Research Center (CNRF) of the Scientific Institute for Agricultural Research (ISRA). The project received financial support from the International Development Research Centre (IDRC) as part of its Rural Poverty and Environment Programme. It was developed together with the local population, the Regional Inspectorates of Water and Forests and the Regional Councils of the Regions of Thies, Diourbel, Fatick and Kaolack. The project has enabled the establishment of twelve community reserves called 'closed areas' in the groundnut basin, which is one of the most important agricultural regions in Senegal.

ACTIVITIES: ————— A number of activities have been carried out as part of the ESPIV initiative. They include:

- **CREATION OF INSTITUTIONAL STRUCTURES:** Through the creation of inter-village committees (CIVm), transhumant host committees (CATm) and forest product marketing committees (CCPFFm), structures have been put in place that enable the local management of forest areas. Similarly, codes of conduct, local conventions and management plans have been established.
- **CAPACITY BUILDING OF VARIOUS STAKEHOLDERS:** The initiative involved the strengthening of technical capacities and skills of researchers, students and development agents involved in the project. The goal has been to better manage common resources by focusing on the effective involvement of women, youth, transhumant and rural councils. It also entailed capacity building for members of inter-village committees to support them in the creation and participatory management of micro-forestry enterprises that develop products as part of the ESPIV initiative.
- **MAPPING THE AREA:** As part of mapping the closed forest areas, a baseline of each site has been established. Subsequently, a monograph of the project sites was produced.
- **PLANNING, IMPLEMENTATION AND EVALUATION OF RESEARCH ACTIVITIES:** Researchers, academics, students, development agents, locally elected officials and populations living near the ESPIV have effectively participated in the different phases of the research activities. Data collection was carried out with various actors such as populations, traders, local transporters, technicians, rural advisors, etc.
- **TRAINING OF WOMEN:** A training of women's economic interest groups on exploitation, processing, storage and sales techniques has been realised. This training made it possible to define and adopt a solution for distributing sales revenue among the various actors – including producers, village committees and rural communities.
- **ESTABLISHMENT OF A POLITICAL DIALOGUE:** A political dialogue has been set up around the twelve ESPIVs for a change in behaviour of locally elected officials. Thus, the latter officially recognised the inter-village committees and delegated the management of these spaces to them by deliberation.

INSTITUTIONS

- INVOLVED:** —————
- **GOVERNMENT AGENCIES:** Ministry of Environment and Sustainable Development (MEDD); Directorate of Water and Forests, Hunting and Soil Conservation (DEFCCS); National Rural Agricultural Advisory Agency (ANCAR)
 - **IMPLEMENTATION PARTNER:** Scientific Institute of Agricultural Research (ISRA); National Forestry Research Center (CNRF)
 - **INTERNATIONAL PARTNERS:** International Development Research Centre (IDRC)

COOPERATION WITH: ——— Municipal councils; farmers' organisations; researchers; NGOs; the private sector



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FINANCE: — A 207,433.02 USD grant has been provided by IDRC for the entire project period for all closed forest areas in the groundnut basin.

IMPACT OF ACTIVITIES: — ESPIV has led to a number of tangible impacts, including the following:

- **NATURAL REGENERATION AND RESILIENCE OF SPECIES:** The closed area saw an increase of more than 52% in the number of species after 5 years, which facilitated the rational management of inter-village silvo-pastoral areas (Badji et al., 2014).
- **GREATER OWNERSHIP OF THE MANAGEMENT OF ESPIV:** Locally elected officials have become aware of the importance of their support role. In collaboration with their locally elected representatives and development agents, the participating rural communities are thus better able to sustainably manage the common natural resources of their land, consequently improving their living conditions (Sanogo, 2011).
- **CREATION OF VALUABLE ECONOMIC OPPORTUNITIES FOR LOCAL POPULATIONS:** The sustainable management of common resources allowed populations to benefit from economic spin-offs. The closed area became a source of additional income for rural populations and a fodder reserve for local livestock and transhumant herds. Indeed, closed areas currently remain the only common sources of leaves, fruits, oil, traditional medicines, fodder, firewood and fuelwood supply for the population – especially for the poorest. The creation of collective and sustainable forest micro-enterprises around non-timber forest products and agricultural products such as tropical fruits (tamarind, desert date, baobab fruit, honey) led to a better valorisation of these products, but also enhanced the entrepreneurial capacity of communities (Sanogo et al., 2014).
- **CARBON SEQUESTRATION IN SOILS:** Carbon sequestration contributes to GHG emission reductions. After about ten years, the carbon storage capacity of a closed area is estimated at 15.32 tonnes (Diouf et al., 2014).

WHY IS IT

GOOD PRACTICE:

- **STAKEHOLDER ENGAGEMENT:** The project adopted a participatory approach throughout all phases by involving local populations in the decision-making process to the end of developing their capacity to adapt to climate change and food insecurity. Village committees have been set up, and local activities have enabled the population to take ownership of the process and be aware of climate-resilient practices.
- **SAFEGUARDING GENDER CONCERNS:** Through the participation of women in all activities, and through the development of income-generating activities, women have become specialists in the collection, processing, and sale of forest products. Women's groups have emerged, supporting forestry companies in partnership with other actors such as locally elected officials and village committees.
- **EFFECTIVENESS:** A few years of closed areas measures have ensured the regeneration and development of the area's vegetation. This regeneration results in a remarkable improvement in the physical characteristics of the soil. Thus, the measures taken have shown to be highly effective in terms of their intended objective of increasing the resilience of the local population.
- **REPLICABILITY:** The methods, tools and results of the sector studies to prepare the monograph of the project sites, baseline situation and site development plan can be used to replicate the experiment in other areas that experience similar threats related to climate change.

SUCCESS FACTORS: —————

- **AWARENESS OF THE PHENOMENON** of the degradation of resources, consensus on the need for action and formalisation of the approach to protecting and using plants and species secured the success of the ESPIVs. Faced with the threats arising from climate change, the affected population has taken actions and developed survival strategies, but also environmental safeguard measures through the closed forest area approach. A participatory communication strategy has facilitated its implementation. The awareness-raising process was based on general assemblies, radio talk-shows and exchange visits.
- **STRONG STAKEHOLDER AND POLITICAL COMMITMENT:** The quality of the partnership between the actors and the commitment of the municipal council spurred the success of the closed area approach. Emphasis was put on the need to develop synergies, first by setting up organisational structures at the local and regional level, and then with locally elected officials.
- **COLLABORATIVE IMPLEMENTATION PLAN:** A collective decision has been taken to protect certain species and plants (for example baobab trees) by organising their use. This collective initiative of the populations has facilitated the development of sustainable income-generating activities.

OVERCOMING BARRIERS / CHALLENGES: —————

WHAT WERE THE MAIN BARRIERS / CHALLENGES TO DELIVERY?

INSTITUTIONAL:

Local authorities have lacked ownership of the management of closed forest areas.

SOCIO-CULTURAL:

Misunderstandings and inter-village conflicts have occurred between farmers and herders, populations and technical services (i.e. forestry services), and even between forestry services and locally elected officials (i.e. rural council). Reasons for the conflicts were the transfer of competences on the management of natural resources from the national to the local level and the fact that the forestry services still retain a certain power.

HOW WERE THESE BARRIERS / CHALLENGES OVERCOME?

As a result of awareness raising measures, local authorities experience an enhanced understanding and increased ownership of the effectiveness of a proper management of closed forest areas. An effective partnership has been established between village committees and locally elected officials. A political dialogue on the rational management of these areas has also been established. Similarly, exchange visits were organised for locally elected officials.

In order to dissolve these conflicts and misunderstandings, the population participated in awareness raising and capacity building sessions. Furthermore, the collaboration of the population with locally elected officials and their technical partners has been strengthened.



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LESSONS LEARNED: ——— • **KEEP THE BIG PICTURE OF A SUCCESSFUL MANAGEMENT OF CLOSED FOREST AREAS IN MIND:**

The successful management of enriched closed forest areas requires a combination of legal, institutional, organisational, socio-cultural, economic and ecological measures. Not considering some of these factors (and their potential synergies and trade-offs) can lead to the failure of such a project. Factors that can constitute obstacles to the success of managing closed areas include (at the institutional and legal level in particular) the lack of capacity of locally elected officials, the lack of knowledge of the laws and regulations on decentralisation and the low level of involvement of the environmental and land committees.

- **BE AWARE OF LOCAL HURDLES TO IMPLEMENTATION:** When realising an initiative such as the ESPIV, it is crucial to take into account the local realities that might obstruct the process. At the organisational and sociocultural level, the exclusion of certain social categories such as transhumants (i.e. seminomadic farmers), the lethargy of surveillance organisations, the interference of certain religious leaders, the incoherence of sectoral policies and the lack of synergies between projects and programmes have proven to be especially important in that regard. In the economic and ecological fields, excessive logging and the absence of a simple management and development plan hinder the management of ESPIV.

HOW TO REPLICATE

THIS PRACTICE: ————— In order to replicate the closed areas approach described above, the following measures are worth considering:

- **ESTABLISH INSTITUTIONAL STRUCTURES ON THE GROUND:** Inter-village committees have been created for implementing all of the measures to ensure a sustainable management of the closed areas. The establishment of forest product marketing committees enables product marketing and revenue sharing of timber and non-timber forest products. The establishment of a monitoring office or committee composed of local residents ensures the protection of the forest areas (i.e. tree cutting and cultivation are prohibited) and raises awareness for the approach.
- **ELABORATE A CODE OF CONDUCT:** The establishment of a code of conduct by all stakeholders and approved by deliberation of the municipal council ensures that ground rules have been set for the collaboration of the different stakeholders.
- **BUILD CAPACITIES OF THE POPULATION INVOLVED:** The training of the population involved and their partners – in particular on the participatory management of natural resources, organisational and entrepreneurial development, the creation of forest enterprises and the use of climate-resilient technologies – has proven essential for the implementation of the measures.
- **FACILITATE A REGULAR EXCHANGE BETWEEN STAKEHOLDERS:** The organisation of exchange visits for locally elected officials and producers enables the sharing of experiences on managing enriched closed forest areas.

CONTACT FOR

ENQUIRIES: ————— · Dr. Diaminatou Sanogo, Director of the National Center for Forest Research (ISRA / CNRF),
sdiami@yahoo.fr

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CASE STUDY AUTHOR: ——— Dethie Soumare Ndiaye, Amy Gueye and Khady Yama Sarr Fall (Centre de Suivi Ecologique)

CASE STUDY

CONTRIBUTOR: ————— Diaminatou Sanogo, Researcher, Scientific Institute of Agricultural Research / National Forestry Research Center

EDITED BY: ————— Katharina Lütkehermöller (NewClimate Institute) and Helen Burmeister (adelphi)

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Dag-Hammarskjöld-Weg 1-5
65760 Eschborn, Germany
+49 6196 79-3330
klaus.wenzel@giz.de

WEBSITES:

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