United Nations Convention to Combat Desertification | United for land

CASE STUDY

Senegal: Training women leaders to develop and run an agroecological farm and nursery: Association Diaoule D'Abord

Summary

In Diaoulé, Senegal, women are leading a locally driven response to severe drought and land degradation through an agroecological farm and nursery project. Trained in agroecology, water management, and sustainable production, they manage a system that integrates traditional knowledge with solar irrigation and biodiversity-focused farming. At its heart is a nursery producing drought-resistant plants, used for reforestation and forest gardens. This initiative not only combats desertification and drought but also positions women as key agents of sustainable development and environmental resilience in their community.

Background

The Agroecological Farm and Nursery Adapted to Climate Change initiative, in the commune of Diaoulé, Senegal, is a bold and innovative response to the harmful effects of climate change, particularly the droughts that affect this region. Central to this solution is the emancipation of women, who are both the driving force and the beneficiaries of this project.

The objectives of this initiative are manifold. It aims to promote sustainable agricultural practices essential for resilience in climate fluctuations. The agroecological farm adopts a holistic approach, integrating soil conservation techniques (e.g. minimum tillage, mulching, and organic compost use) with water management strategies (e.g. energy saving solar irrigation systems and water retention practices). These methods aim to increase soil fertility, save water, and maximise crop yields despite challenging conditions. The nursery, central to the project, is a critical innovation that catalyses change. It is a propagation centre for native and drought-resistant plants, which are then used to reforest farmland and restore degraded ecosystems. This improves crop resilience to water stress and contributes to the region's biodiversity and environmental health.

The women of Diaoulé are the real pioneers of this initiative. They receive technical and managerial training that equips them to run and develop the farm and nursery. This enables them to become agroecological entrepreneurs capable of generating income while acting as guardians of their environment. By placing them at the forefront, the project strengthens their ability to manage natural resource sustainably. It promotes

gender equality and female empowerment in a region where women are traditionally the breadwinners.

The initiative builds on the synergy between tradition and innovation, integrating ancestral agricultural knowledge with new environmentally sound techniques to create a production system that is both environmentally friendly and economically viable. With a strong emphasis on training and skills development, the project aims to create a sustainable model that can be replicated in other communities facing similar challenges.

Actions taken

The women of the Diaoulé community have played a crucial role in the community's greening process, particularly in promoting agroecology and women-led nurseries, which are innovative solutions for resilience and adaptation to drought. Women's involvement in these initiatives is a matter of equity and representation and an effective strategy for natural resource management and climate change mitigation.

The enthusiasm and tenacity that the women bring to this work has enhanced the dissemination of agroecological knowledge and techniques. Through training sessions and workshops, women share their experiences and skills, strengthening their capacity to manage land sustainably and adapt to climate variability.

The strategies and approaches that the women use have contributed to environmental safeguarding. Women have adopted farming methods that maintain and improve soil health, such as composting, crop rotation, and agroforestry. These techniques enrich the soil, increase water retention capacity, and minimise the need for costly and potentially polluting chemical inputs, resulting in greater land productivity and resilience to extreme weather events.

Women also initiated a forest park project, which aims to regulate climatic conditions and address significant environmental challenges, including sustainable forest management. The project has enabled local communities to adopt resilience strategies to combat environmental degradation and the adverse effects of climate change.

The women of Diaoulé have also established nurseries, demonstrating expertise in selecting appropriate species and managing young plants, a crucial measure in ensuring the survival and growth of plants in challenging conditions.

There are five village nurseries, one already established at the agroecological farm, with a capacity of 100,000 plants, and four others with a capacity of 50,000 plants each, totalling 300,000 plants per year. Reforestation sites will be defined and delineated in each of the 10 selected villages, along with the village chief and the President of the Communal Environment Commission. Prerequisites including making water available through solar pumps, fencing the site with wire mesh, and training male and female nursery workers.

The project will benefit all 10 target villages. Ultimately, over 200 farmers will directly benefit from the project, along with more than 5,000 residents in the 10 target villages and neighbouring areas. The community benefits include the creation of hybrid forest gardens within agricultural farms to restore vegetation cover and enhance local biodiversity,

diversification of smallholder farmers‘ income sources through the sale of non-timber forest products, promotion of ecological corridors to enhance ecosystem resilience, and sustainable natural resource management to adapt to climate change. The project plans to reforest 100 hectares and protect 200 hectares per village annually for five years, totalling 1,500 hectares reforested over the project‘s duration.

Outcomes

Ndeye Khady Ndiaye, Maimouna Faye and Ndeye Sene are examples of successful leaders who have effectively implemented what they have learnt in the training:

Ndeye Khady Ndiaye, a local inspiration with a passion for agroecology, has transformed her ancestral knowledge into innovative practices. She leads a model farm where she integrates water-saving techniques and soil conservation. Through her leadership, she has created a community nursery that provides drought resistant plants to local farmers, enhancing food security and economic independence in her community. Her collaborative approach has not only improved local resilience, it has also caught the attention of national policy makers, who seek to replicate her resource management model.

Maimouna Faye, a visionary in the field of permaculture, has demonstrated how a small agroecological farm can have a significant impact. She developed a solar-powered drip irrigation system, drastically reducing water consumption. She organises workshops to train other women, empowering them to become agents of change in the fight against drought. Her commitment to sustainability and innovation has made her a prominent figure in regional forums on sustainable agriculture.

Ndeye Sene is in charge of finances derived from reforestation. She has established a Village Savings and Credit Association, enabling women to cultivate and sell vegetable plants while preserving biodiversity. Her work has strengthened environmental resilience and fostered a sense of belonging and pride among the women in the community, who are now seen as guardians of their natural and cultural heritage. Each of these women illustrates the positive impact that female leadership can have on resilience and adaptation to environmental challenges, such as drought, at various levels of society.

Challenges:

The project of agroecological farms and nurseries, led by women, emerges as promising solutions to strengthen resilience and adaptation to drought conditions. However, they face numerous challenges and gaps that are crucial to recognise and address.

- ***Lack of access to resources:*** Women, in general, have less access to land, financing,
  training, and agricultural technologies than men. This imbalance limits their ability to establish and expand agroecological projects. Land constraints may prevent women from implementing sustainable practices on a large scale, reducing the potential impact of their efforts.
- ***Recognition and valorisation of their work:*** Although women-led projects can be very effective, they often need more visibility and institutional support. This is

presumably because, as a marginalized group, they go unseen. Recognising their crucial role in combatting the effects of climate change is necessary for these projects to gain the political and social support that could accelerate their impact.
- ***More specific agroecology training:*** Women may need access to education or training to help them apply the best agroecological practices. Without this, their ability to innovate and improve their methods may be hindered and, without it, optimising water use, conserving biodiversity, and increasing productivity sustainably becomes difficult.
- ***Workload:*** Women often manage both household and agricultural responsibilities, which can limit the time and energy they have to devote to their agroecological projects.

Yet, in the face of these challenges, agroecological farm and nursery projects led by women demonstrate enormous potential. When women are supported and empowered, they can become powerful agents of change, promoting sustainable agricultural practices that benefit both the environment and their community. By investing in gender equality, training, and access to resources, these projects can become models of sustainable development and resilience.

Lessons Learned

1. Agroecological farms led by women can serve as replicable models for climate adaptation.
The integration of local knowledge with sustainable techniques has created resilient agricultural systems that other drought-affected communities can adopt.

2. Empowering women with technical and leadership training ensures sustainability.
With skills in agroecology, water management, and nursery development, women become long-term stewards of the land and catalysts for change in their communities.

3. Community nurseries producing drought-resistant plants are scalable.
With proper training and solar irrigation, these nurseries can be expanded to new villages, aiding reforestation, biodiversity, and economic resilience.

4. Female-led reforestation and forest garden projects offer a cost-effective solution.
These approaches combine environmental restoration with income generation, making them adaptable to different contexts with similar ecological challenges.

5. Sustainable agriculture thrives when projects combine tradition and innovation.
Blending ancestral farming knowledge with climate-smart methods helps communities preserve culture while building resilience — a model adaptable across regions.

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