

Restoration of natural capital

Local civil society is leading the way to introduce a low-cost land restoration technique that helps combat poverty and hunger among subsistence farmers by enhancing food, water and income security in a region facing recurring drought.



THRIVING ECONOMIES



IMPROVED LIVELIHOODS



FOOD SECURITY



WATER SECURITY



HEALTHY BIODIVERSITY



CLIMATE RESILIENCE



SUSTAINABLE DEVELOPMENT

Regreening the Sahel: restoring native vegetation using Assisted Natural Regeneration

Context and challenge

Mali and Burkina Faso are in many ways typical of the Sahel region. Primarily covered with grassland and savannah alongside scattered patches of woodland and shrub land, rainfall is low and unpredictable. They are among the world's poorest countries both ranking in the lowest ten percentile of the 2013 United Nations' Human Development Index¹.

In an often picturesque land of traditional villages and rugged hills, the 34 million people who live within this landlocked belt practice small-scale cultivation and pastoralism, a centuries-old system of raising and herding livestock developed to cope with changing weather patterns. In addition to rainfed farming, irrigated vegetable production is one of the few remaining sources of income. Many parts of the region have been damaged by unsustainable farming methods and frequent bushfires. Population density is often high for an area with such nutrient-poor soil and low rainfall.

The Sahel has always been arid, but more unreliable and decreased rainfall and rising average air temperatures are making this region even hotter and drier. Crop yields are suffering and drinking water can become scarce during periods of low rainfall. Streams dry up earlier in the season, and the water tables have fallen. Moreover, individual storms can be very intense, washing away fertile soil layers. Today communities are finding it hard to feed themselves as they face crises of successive poor harvests and, in the case of Mali, the collapse of the once-flourishing tourist industry in the wake of recent conflicts.

Taking an ecosystem approach

The ecosystem approach promotes the integrated management of land, water and living resources in a way that achieves mutually compatible conservation and sustainable use, and delivers equitable benefits



for people and nature.² Subsistence farmers in both Mali and Burkina Faso have long traditions of soil and water conservation. They have devised a range of conservation techniques including hillside terracing, stone lines, earth basins, planting pits and earth mounds. A relative newcomer to this wealth of local knowledge is Assisted Natural Regeneration (also known as Farmer Managed Natural Regeneration) – a pioneering low-cost land restoration technique that, with Ecosystem Alliance support, is accelerating the revival of natural vegetation, with a focus on the varieties of trees that best fit communities' needs.

Alliance partners have supported smallholder farmers in several countries in Africa to apply Assisted Natural Regeneration through restoring the original tree vegetation on their own farm land, by nurturing and protecting spontaneous regrowth of tree seedlings and by using pruning techniques which allow young trees to grow faster. Integrated into crops and grazing pastures, the regenerated trees and shrubs have several functions, such as adding soil fertility by fixing nitrogen in the soil, providing leaves (mulch) on the soil which increases the water holding capacity of the soil, or simply as provider of shade, fruit, fodder and such. As a result, crop yields have been shown to double. Full regeneration typically takes 20 years, but Alliance partners have been working with farmers who are already noticing benefits within 5-7 years.

The technique can be accompanied by the planting of indigenous tree species and the further production of non-timber forest products which communities can use for food and income. Thus pressure on high biodiversity sites outside these areas is further reduced.

The trees and shrubs provide extra timber and firewood, fodder and shade for livestock, additional nutrition to the human diet and medicinal products. The availability of more fodder can reduce conflicts between nomadic pastoralists and farmers over the exploitation of natural resources. 'Social fencing' – either agreements between farmers, community members and herders on how to prune and use the tree resources, or actual fences – has been key to success in many cases. Mutual benefits are realised when the pastoralists passing through the farmers' fields leave manure in return for fodder for their



Benefits to women

Under the hot Morena sun, in the west of Mali, Aissata Diallo is loading her donkey trailer with wood. She has gathered it while pruning native trees that grow alongside the millet and sorghum on her two hectare farm.

She used to destroy these trees, which she considered as weeds. Since 2011, along with 60 fellow villagers in the Groupement des Femmes DoloSaba-Morena, Aissata has practised ANR. In three years tree density has increased by 50-60%. Aissata and other early adopters of ANR are reaping huge benefits compared to when they had to walk a few hours every day to collect wood from the adjacent Doro forest. As tree densities rise over time, they will benefit from the availability of ground water, improved soil fertility and improved yields. All of this will greatly enhance the health and well-being of the women and their communities.



livestock. Such agreements can be essential to the survival rates of the seedlings.

Local civil society engagement and leadership has been critical to success. In Mali, the Alliance has worked with Développement au Sahel, Association Malienne pour la Conservation de la Faune et de l'Environnement, DONKO, AMPRODE and Sahel Eco, and in Burkina Faso with Réseau Marp, Association pour la Gestion de l'Environnement et le Développement, Association pour la Gestion Association inter villageoise de Gestion des Ressources Naturelles et de la Faune de la Comoé – Léraba, Naturama et New Tree. The local organisations have offered training in techniques which farmers are encouraged to use during routine farm maintenance.

A documentary highlighting the Ecosystem Alliance work on Assisted Natural Regeneration in Mali was broadcast as a tool for lobby and outreach on Mali's National Television.

Impacts on Communities, nature and policy

- Since 2008, approximately 47,000 hectares of land are in the process of being restored.
- The average number of trees per hectare has risen from 7 to 70 over the course of seven years.
- In places like the Bankas area in Mali and Ouedougouia in Burkina Faso, Assisted Natural Regeneration has been adopted at larger scale. It is being replicated in other regions.
- The technique has been integrated into Burkina Faso's national REDD+ strategy for both mitigation and adaptation purposes. Farmers and local communities have been empowered to engage in national discussions on redefining the forest under the REDD+ strategy. If successful, this could at last bring adequate financial support to address deforestation and degradation.

Looking to the future

Assisted Natural Regeneration has great potential for 'Regreening the Sahel' in a relatively cheap and participatory way, creating a basis for improved livelihoods, water provision, employment and a green economy. Over time it will also reduce the unsustainable extraction of resources from adjacent forests.

Work is advancing to scale up the local approach into regional and national agricultural extension programs. Ambassadors from grassroots networks, producer associations, and municipal or national government departments should be mobilised to spread the word. Key to success will be the training provided by the local civil society organisations and community partners to national government representatives to embed the new thinking in climate change related policy and legislation, and to incorporate it into district biodiversity planning processes. Civil society is also lobbying for the revision of on-farm trees and land tenure legislations, to enable private ownership of those resources, which highly encourages farmers' investments in trees and land.

There is a real opportunity for governments, and perhaps increasingly companies, to capitalise on successes to date. A business case can be made for Assisted Natural Regeneration to be integrated into sustainable value chain development for commodities such as cotton and shea butter, as well as for certain local non-timber forest products. Those involved in climate policy can look to Ethiopia as well, where the approach is being embedded in a national carbon sequestration project.

Mali and Burkina Faso's subsistence farmers are leading the fight to offset the worst impacts of climate change in one of the world's most fragile areas.

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Further reading

1. <http://africa-regreening.blogspot.nl>
2. <http://fmnrhub.com.au>

REFERENCES

1. <http://hdr.undp.org/en/content/table-1-human-development-index-and-its-components>
2. <http://www.cbd.int/ecosystem/>

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