



FMNR *Faidherbia* parkland in Baribsi.  
Photo: Jean Charles Bambara

## Farmer managed natural regeneration to reconstitute agroforestry parklands in Burkina Faso

Jean Charles Bambara

***“Farmer managed natural regeneration offers agronomic, environmental and socioeconomic benefits.”***

### Introduction

Burkina Faso faces accelerated degradation of its natural resources as a result of the combined effects of natural and human-caused factors (inappropriate farming practices, bush fires, wood cutting, extension of agricultural areas, etc.). The province of Passoré, in the Nord Region of the country, is in an arid zone and regularly experiences food insecurity. Climate change impacts are exacerbated by strong anthropogenic pressures, overexploitation of land, deforestation, rural exodus and poverty (Kaboré et al. 2019). The successive droughts of the 1970s and 1980s that affected the Sahelian countries left their mark on this province, including a negative impact on the soil. Rainfall — around 600 to 900 mm annually — is insufficient and irregular (Conseil régional du Nord 2018). Very low agricultural yields expose populations to the spectre of famine (INSD 2022). Vegetation is severely degraded as a result of over-exploitation.

To address these problems, farmers have for many years been developing initiatives based on local knowledge and traditional practices. These include traditional agroforestry systems, known as agroforestry parklands (scattered trees in cropland) and water and soil conservation techniques such as stone barriers, *zai* (pits to catch water and concentrate nutrients) and half-moons. Many specialists advocate a return to these ancient agroforestry practices (e.g., Torquebiau 2022), which are seen as a way of bridging the gap; i.e., reconciling agriculture and the environment. For a long time public agricultural policies considered trees an obstacle to mechanization (Dupraz and Liagre 2011). But the adoption of these local practices requires high levels of conviction and motivation (Akrich et al. 2006). Some NGOs are involved in promoting these practices, as a project manager at Solidarité et Entraide Mutuelle au Sahel (SEMUS), a local development association based in Yako, explains:

*“In the project, we encourage agroforestry because it also helps to safeguard certain species that were on the verge of extinction. It’s the only way to safeguard these species. Otherwise, here in the village, we’re going to reach a point where our children won’t even know what our forest species are, compared to the ancestral practice we used to know.”*

Among these initiatives, which in part rehabilitate farmers’ knowledge of nature, is farmer managed natural regeneration, or FMNR. FMNR is an ancestral agroforestry practice that consists of protecting and tending spontaneous stump sprouts or natural seedlings of useful trees and shrubs in agricultural fields. This article analyzes the contribution of FMNR to the reestablishment of agroforestry parklands and its socioeconomic impact.

This qualitative study was carried out from March to June 2022 in the province of Passoré, in the communes of Gomponsom, Lâto-den and Yako. It is based on diverse information sources and on various criteria such as the size of the farm, the species found in the plots and their condition. Data was collected using semi-structured interviews, informal interviews and an ethnobotanical survey. These techniques were combined with direct observation to determine any discrepancies between discourse and practice. The study involved 68 people — 45 men and 23 women — of varying socio-demographic characteristics. This article presents some of the perceptions that emerged from the empirical data and that are cited by local people (farmers) as reasons to adopt FMNR. Insecurity due to persistent attacks by

armed terrorist groups, which foster a climate of terror and suspicion among the population towards actors from outside their environment, caused some people to refuse to take part in the study and often hindered the fieldwork.

## Farmers’ perceptions and adoption of FMNR

### **A low-cost agroforestry practice**

One of the reasons why farmers are so keen to adopt FMNR is that it is a low-cost practice that everyone can afford. Other options, such as reforestation, vegetated stone barriers and nutrient gardens, all require a certain amount of money and considerable physical effort. Planting a tree is seen as a good initiative, but it requires money to buy the plant and to protect it (with fencing) from browsing by animals. FMNR, however, requires fewer technical and financial resources.

### **A way to circumvent customary prohibitions**

Sociocultural and metaphysical beliefs surround trees and local species. The traditional species found in agroforestry parklands are seen as a gift from God and cannot therefore be planted. For some farmers, planting these trees on an agricultural plot could be interpreted as defiance of ancestors and gods, and therefore as a transgression of ancestral rules. However, several of the people interviewed felt that FMNR is a “discreet” technique that offers room for manoeuvring and avoids transgressing social norms. For the animist stakeholders who share these beliefs, by practising FMNR they avoid attracting the wrath of the ancestors, as they have not planted the tree but rather tended it.

### **A strategy for getting around land restrictions**

Some agroforestry practices also involve planting trees on cultivated plots. Given the customary land laws in force in the country, this planting could be seen as a sign of ownership of the plot (Levasseur et al. 2008; Colin et al. 2023). As a result, it is likely that migrants, people from other villages and women could be excluded from agroforestry, as they have limited rights to land. Nevertheless, these stakeholders recognize the advantages and benefits of trees in the fields and are developing strategies to this end. Since FMNR does not involve any tree planting, it becomes a way of getting around these land restrictions.

The farmers surveyed indicate that the young trees that are ubiquitous in the plots are the fruits of the FMNR that

they have practised. Field data also show that FMNR is a practice encouraged by landowners. This view is linked to the customary laws governing land tenure. Indeed, one of the restrictions on land transactions is the prohibition on the lender cutting down trees on the agricultural plot. Failure to comply with this explicit rule results in the withdrawal of the plot.

In this context, practising FMNR denotes good intentions on the part of the user of the plot, who instead of destroying the trees to enlarge the field, develops initiatives to increase their number on the farm. This does not contradict the customary system, where the planting of a tree is quickly interpreted by the owner as a sign of land appropriation. This is what a 63-year-old Indigenous farmer in Gomponsome had to say:

*“If someone applies for a plot of land to cultivate and then wants to plant a tree, they must inform the owner first. If, after discussions, you all agree, so much the better. The owner will say that he gave you his land to cultivate. Now if you want to plant a tree, you should know that I offered you the land but you didn’t buy it. How many years can a tree live? At some point, you’ll want to take over the land because you’ve planted trees. But after a certain length of time, the owner is going to want to reclaim the land, and that’s complicated.”*

It is not only foreign men who appreciate and adopt FMNR. Women are also excluded from owning land under customary law. They are regarded as foreigners not only in their own families but also in their husband’s family. They work the land only with the permission of their husbands and are not allowed to plant trees, on pain of repudiation by a family council.

In view of its relatively effective results, FMNR therefore appears to be an agroforestry practice capable of meeting the threefold challenge of restoring land, reducing exclusion from projects involving tree planting, and reducing food insecurity by increasing the cash income of vulnerable households. Its practice has led to significant changes in the province of Passoré.

### **Social dynamics and changes**

FMNR has become a systematic practice that farmers have integrated into their farming systems. This is partly due to the failure of projects to disseminate techniques to combat desertification, implemented in the Sahel in the post-drought periods of the 1970s and 1980s. More importantly, it is because FMNR generates visible and concrete results and does not require any financial investment on the part of the farmer. It can be described as a success story (Olivier de Sardan 2021).



**Left: A young bangandé (*Piliostigma reticulatum*) from FMNR in a field at Gomponsom; Right: A more established bangandé (*Piliostigma reticulatum*) from FMNR. Photos: Jean Charles Bambara**

### Towards hybridization of agroforestry parklands

The gradual decline in indigenous species in agroforestry parklands, combined with the scarcity of firewood for energy, has prompted farmers to introduce other species into their fields, such as *Piliostigma reticulatum* (*bangandé*). The rehabilitation of this species is the result of women's desire to meet their energy needs, as firewood is the most widely used energy source in the province. According to data from the Institut National de la Statistique et de la Démographie (INSD 2019), wood is the main source of energy for cooking (82.9%), followed by gas or biogas (6.2%). Practising FMNR has made it possible to reintroduce species that had fallen into disuse. This has helped to reduce population pressure on species commonly found in agroforestry parklands.

This hybridization of agroforestry parklands — by integrating and tending *bangandé* — is in line with the farmers' approach, which consists of avoiding the restrictions of the forester and the constraints linked to the exploitation of certain trees. This relates in particular to protected local species, for which the farmer must contact the departmental environmental service, which is the sole state guarantor of the preservation of flora and fauna. The photos on the previous page illustrate the importance that the people of Gomponsom attach to FMNR in their fields and the interest that *bangandé* represents.

### An opportunity to restore the forest landscape

Another merit of FMNR is that it has improved the density of plant cover. Among the species favoured are shea, *Faidherbia* (formerly *Acacia*) *albida*, *nééré*, *Lanea microcarpa*, *Balanites* sp. and lianas. In an area where sociocultural beliefs are still very much alive and can have a negative influence on reforestation and landscape greening activities, FMNR is becoming the practice that makes it possible to meet the challenge of land degradation by restoring clearings (*zippélés*). In addition, various species have improved the livelihoods of local people through the commercial opportunities they offer. In the province of Passoré, FMNR has made it possible to regenerate 430 ha of forest, mainly made up of local species such as *Vitellaria paradoxa*, *Parkia biglobosa*, *Lannea microcarpa*, *Balanites aegyptiaca*, *Acacia macrostachya*, *Bombax costatum* and *Piliostigma reticulatum*. See photos below.

### Empowering women

The empowerment of women is one of the major changes brought about by the practice of FMNR. To reduce rural poverty, which disproportionately affects women, the non-timber forest product (NTFP) sector has been promoted by development agents, in conjunction with FMNR. NTFPs provide commercial opportunities, with the result that processed NTFPs can be found in shops and



Left: Tolia communal forest; right: Young shea shoots in Kouni. Photos: Jean Charles Bambara

other businesses in the country. The international market is also being explored, and processed products (shea butter, *soumbala*, monkey bread (baobab), tamarind, etc.) can now be found in various forms, with packaging stamped with the Burkina Faso flag. The growing demand for NTFPs on the international market is a boon for local people. With this in mind, since 2011 the NGO Tree Aid has been promoting agroforestry practices and local governance of forest resources through the Weoog-Paani (“New Forest”) project in the Nord Region. The project has strengthened the capacity of women members of forest management groups in techniques and technologies for processing non-timber forest products. For example, to help women process shea butter, Tree Aid and its partners have set up a semi-industrial unit to help women process shea kernels into shea butter in the commune of Gomponsom (see photo, right).

Through providing NTFPs, farmer managed natural regeneration has therefore helped to increase women’s income and strengthen their autonomy within the household. Many women are increasingly investing in the exploitation, processing and sale of NTFPs such as shea, *nééré*, *Balanites* leaves, *Lanea microcarpa* and lianas (see photos next page), which enables them to participate more fully in the household economy and cover expenses such as children’s clothing and supplies, medicine, and condiments for the family meal. This has helped to change the status and perception of women in society.

Women at the shea processing unit said that thanks to FMNR the sale of products from agroforestry parklands meant that they were no longer as dependent on their husbands and could play a full role in accordance with the gender division of labour (Kergoat 2001). These women stated that they had an annual income of between XOF 60,000 (West African CFA franc; EUR 91.60) and XOF 100,000 (EUR 152.67) from the sale of NTFPs. They invest these sums in other income-generating activities; in particular, the rearing of small ruminants, with a twofold objective: to provide fertilizer for their plots of land, and to sell products during the lean season to meet emergencies. Some of the women save their money in the Caisse Populaire.

## Conclusion

This article shows that ecological and environmental crises, and their adverse effects on local populations in Passoré Province, have encouraged the rehabilitation of ancestral practices such as FMNR. Supported since the late 1970s by external players, this practice has become re-established in this region of Burkina Faso.



**A group of women at the shea processing unit at Gomponsom.**  
Photo: Jean Charles Bambara

Farmers’ renewed interest in FMNR is linked to its products and to the agronomic, environmental and socioeconomic benefits that it offers. Local people do not just adopt a technique; they assess the benefits, costs and consequences in terms of improving their livelihoods. In view of the positive changes that FMNR has brought about in reducing socioeconomic insecurity, and thanks to the commercial opportunities offered by non-timber forest products, FMNR now appears to be an essential practice for reconstituting agroforestry parklands in the face of the many failures of reforestation projects and ongoing land ownership dynamics. FMNR also makes it possible to increase biodiversity in areas affected by climate change. Because of its potential for rapid reconstitution of tree and shrub cover at a low cost, this agroforestry practice should be disseminated more broadly to prevent the degradation of forest resources. It could also be replicated in other localities in Burkina Faso to prevent and combat the degradation of natural resources.



**Processing and sale of NTFPs: a) making shea butter at Gomponsom; b) crushing balanites nuts at Zoungoungou; and c) balanites leaves for sale. Photos: Jean Charles Bambara**

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