



Outstanding Practice in
AGROECOLOGY 2019



FACTSHEET

Cameroon – Participatory Domestication of Indigenous Trees for the Delivery of Multifunctional Agriculture by Agroforestry (1994)

IN BRIEF

The practice “Participatory Domestication of Indigenous Trees for the Delivery of Multifunctional Agriculture by Agroforestry” aims to tackle land degradation and social deprivation by enabling farmers to implement agro-forestry techniques. In Rural Resource Centres (RRC) capacity building and knowledge exchange between farmers, NGOs, governments and private are encouraged, as well as livelihood diversification through the creation of new-local micro-enterprises. RRCs offer farmers access to knowledge, interactive learning, links to networks and activities, including training in group dynamics, entrepreneurship, nursery development, seed and seedling production, tree propagation, post-harvest processing, storage and marketing. In Cameroon, the research institute World Agroforestry Centre (ICRAF) and local partners have helped communities to open 10 RRCs, hosting 150 nurseries and serving over 10,000 households, however due to lacking funds, activities there stopped 6 years ago (2012). Between 2016-2017 in Mali, 14 RRCs were established, 4 million trees of 25 species were planted, engaging 80,000 farmers in 183 villages on 23,000 ha, 38 women’s co-operatives (25,000 women) and 178 schools.

ABOUT THE PRACTICE AT A GLANCE

Organisation: World Agroforestry Centre (ICRAF, International Agricultural Research Institute, part of CGIAR) with NGOs, CBOs and local communities

Implemented in: Cameroon / Mali

Year: 1994/2016

Beneficiaries: Local communities, especially women and youth

Topic(s): Africa, Cameroon, production, agroforestry

PROBLEMS TARGETED / CONTEXT

The practice addresses food insecurity, malnutrition, poverty, soil infertility, ecological dysfunction above and below ground, loss of biodiversity, environmental degradation, social deprivation and injustice, unemployment, climate change and thus converts the trade-offs generally considered to be an inevitable consequence of modern conventional agriculture into 'trade-ons'.

It builds on ICRAF research in Cameroon from 1994-2009 and development projects implemented by ICRAF and partners from 2000 until present. It started by asking farmers what they wanted from agriculture and this led to a self-help grassroots approach to the participatory domestication of the highly nutritious indigenous fruit and nut trees which are traditionally and culturally important, and locally marketed, local foods. By creating Rural Resource Centres for community capacity building across many relevant skills, this grew from 10 farmers in 2 villages to over 10,000 farmers in 500 villages through word of mouth local dissemination. In 2010, one of the communities won an UNDP Equator Prize in 2010. From this a 3-step generic model was developed to reverse the cycle of land degradation and social deprivation by restoring agroecological functions and soil fertility, and so to fill the yield gap in common staple food production, as well as to create new local micro-enterprises in the rural economy, for further income generation and alternative livelihoods. This approach is delivering multifunctional agriculture by agroforestry which is defined as applied agroecology.

KEY FEATURES OF THE SOLUTION

The main goal and objectives of the practice are to address food insecurity, extreme poverty, malnutrition and social inequity, through capacity building in affordable and appropriate approaches in smallholder/subsistence farmer communities, using low technologies based on agroecological approaches together with income generation. Rural Resource Centres (RRCs) use a bottom-up approach, providing knowledge and skills about agroecology to farmers and their communities, and enabling them to improve their living conditions and productivity. Additionally, the centres link farmers to local NGOs, governments and with input suppliers and produce markets, to help them acquire knowledge and technologies. Capacity strengthening activities supported by the centres include training in group dynamics, entrepreneurship, nursery development, seed and seedling production, tree propagation, post-harvest processing, storage and marketing. One of the fundamental principles is that farmers must commit their own time and effort without payment. This in-kind, self-help approach has been extremely effective because it builds on the farmers' own interests and experience.

RRCs and plant nurseries (and subsequent knowledge transfer) strengthen farmers' capacities and provide them with knowledge to combine basic horticultural techniques together with agroecology. They learn to identify and domesticate the most useful trees from the local forest area (e.g. for personal consumption, medicine, selling on the market), whilst simultaneously bringing benefits to the natural systems in terms of soil fertility and biodiversity. Thus, these establishments serve as centres for learning and enable the best practices to spread quickly and efficiently. Some centres are specialised, for

example, in soil fertility technologies, cacao production (drying material, post-harvest techniques) or climate smart agriculture. At farm level, the relationship between RRCs varies depending on type of farms and regions. Where land is available for trees to be planted, the RRC supports the farmer in the setting up an orchard (small farmers tend to plant 20-50-100 trees), which are integrated with normal farming systems.

ICRAF oversees the implementation and works hereon with NGOs/CBOs and other partners together with local communities in Rural Resource Centres. The successful dissemination of agroforestry practices – besides the word of mouth – is especially due to community-based organizations.

INNOVATIVE ASPECTS

- It is a low-cost project based on appropriate technologies and community-based local incentives.
- It has led to improvements in local infrastructure (storage facilities, etc.).
- Empowers farmers through a self-help bottom-up approach, including women and youth
- Uses a holistic and integrated approach to rural development
- Diversifies farming systems with culturally important indigenous food tree species
- Creates a functioning and balanced ecosystems and recycles natural resources in a way that rehabilitates degraded land.

FACTS & FIGURES

- 40 nurseries were established, where tree propagation techniques are studied and disseminated among farmers
- 10 RRCs were established in Cameroon, hosting 150 nurseries serving over 10,000 households. One of the communities won an UNDP Equator Prize in 2010.
- The Agricultural and Tree Products Programme launched in West and North-West Cameroon is working with over 10,000 farmers and 50 entrepreneurs in 485 communities.
- Over 1.6 million trees planted.

OUTCOME, IMPACT & EFFECTIVENESS

- Self-sustaining of local communities and improvement of food security.
- Average income of participating communities rose from almost nothing to over \$26,000; likewise, local entrepreneurs (mainly women) generated \$1,000's through post-harvest processing and trade of farm-grown tree products. Indeed, when cash crops are grown together with fruit trees, farmers' incomes can increase by USD 500 per hectare from the additional sale of fruit.
- Empowerment of women and youth - it is largely women who go on to trade the extra products and research has shown this is often used to fund schooling activities.
- Led to the improvement of local infrastructures (wells, piped water, roads, commu-

nity post-harvest storage facilities, community management committees for village's governance, etc.)

- The over 1.6 million trees planted improved soil fertility and initiated an agroecological succession that raises above and below-ground biodiversity important for ecosystem functions.

OUTLOOK, TRANSFERABILITY, SCALABILITY & COST-EFFICIENCY

The main costs are deriving from the creation of community-based RRCs, which cost between FCFA 1 million to 20 million (€ 1,526 to 30,518) in the driest and more dangerous areas (e.g. Sahel). Often hosted in existing buildings, the infrastructure costs are minimal. Likewise, the focus on appropriate low technology means that the operating costs are very minimal, e.g. the vegetative propagation boxes do not require piped water or electricity and are built with locally available materials. After being in existence for 18 years in Cameroon, the practice stopped 6 years ago due to a lack of funding. However, communities are maintaining these activities.

Inspired by the Cameroon experience, over 50 indigenous food trees species are included in domestication programmes worldwide. This shows the replicability and the scalability of the practice. The main constraints to testing this seem to be political will and the funding for Rural Resource Centres. In 2016-2017, 14 RRCs were established in Mali, engaging 80,000 farmers in 183 villages.

In order to up-scale the practice, the practice needs funding for capacity-building at the community level, i.e. training of NGO/CBO trainers, salaries and operating costs of local trainers, and availability of technical expertise in horticultural techniques, especially in vegetative propagation of trees.

Because activities are led and implemented by local community members, often with very poor level of education and without income to support sophisticated techniques, there is little or no relevance of high tech approaches.

INTERVIEWEE FEEDBACK

Number of points: 22 out of 23

Summary: The interviewee gave much information about the practice, which started small and spread quickly across the country, and then other countries. The practice scored extremely well across all principles, only twice losing 0.5 of a mark.

1 (Sustainable use of resources) – 5.5/6 – Champions regeneration of natural resources by promoting indigenous tree species. Recycles nutrients from the soil and promotes diversity through spreading various local trees. Economic sustainability is fair, however relies on external funding (0.5).

2 (Equity and eradication of poverty) - 3.5/4 – Bottom up approach that seeks to ensure social justice and equity. Responsibility is given to the farmers, techniques are easy to learn and to disseminate. Creates jobs in local areas through RRC, often run by

young people. Women empowered as seed keepers. Promotes local solutions and some research on markets, but not too extensive hereon (0.5).

3 (Precautionary approach to human health, natural resources and ecosystems) - 2 / 2 – Tree domestication doesn't encourage chemicals and no GMOs at all. Risk that farmers would go for one species above all, so they try to avoid monoculture..

4 (Public participation and access to information) - 3/3 – Bottom-up approach with the public sectors and public research organisation. Everything is open and in public domain. Lots of work with universities and students. Collaboration with RRC is very important for the co-creation of knowledge. Lots of local knowledge throughout.

5 (Governance and human security) 3/3 – No risk of corruption in promotion of tree domestication. No unethical conduct. Have signed some conventions and champion accessibility for all and transparency. Encourages farmers to protect genetic resources.

6 (Integration, interrelationship- human rights, social, economic and environmental objectives) - 3/3 – Social justice and environmental benefits incorporated throughout. Values natural resources and encourages tree planting. Diversification of income sources and job creation. Diversifies diets.

7 (Common but differentiated obligations) - 2/2 – Adapted to region as uses locally available resources and species preferred by local population. All voluntary, no burden for any party.

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LINKS AND FURTHER READING

World Agroforestry Center, Rural Advisory Service: What works. A synthesis on innovative approaches for benefiting empowering farmers: <http://www.worldagroforestry.org/downloads/Publications/PDFS/BR15010.pdf>

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Leakey, R.R.B. (2014), The role of trees in agroecology and sustainable agriculture in the tropics. Annual Review of Phytopathology 52: 113-133: https://permaculturenews.org/files/The_Role_of_Trees_in_Agroecology_and_Sustainable_Agriculture_in_the_Tropics.pdf

Leakey, R.R.B. (CABI, 2012), Living with the Trees of Life – Towards the Transformation of Tropical Agriculture: <https://bit.ly/2ErPs8O>

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Pye-Smith C. (2010): A Window on a Better World. An innovative agroforestry development programme is transforming lives and landscapes in rural Cameroon. In: ICRAF Trees for Change no. 5. Nairobi: World Agroforestry Centre: <http://www.worldagroforestry.org/downloads/Publications/PDFS/B16612.pdf>

Oakland Institute (2011), The Agricultural and Tree Products Program in Cameroon, http://afsafrica.org/wp-content/uploads/2015/11/Agroforestry_Cameroon.pdf