



# Accelerating Impact with Agroforestry Innovations

*the theory and practice of change*

**How do you want your cup of cocoa?  
Sustainable and fair please!**



## 1. Challenges and Opportunities

Cameroon, the fifth-largest cocoa grower in the world, earns 250 billion CFA francs (US\$523 million) a year from the commodity, accounting for about half its primary-sector exports and employing some six million people. In response to a continuous 2% a year rise in global demand for chocolate, the government of Cameroon aims to boost output to 600,000 tonnes per year by 2020. However, industry experts and farmers are skeptical. The country's ambition to triple cocoa production and become one of the world's top three producers within a decade is being hampered by a failure to make ageing plantations more profitable and attract young farmers to the sector. The country faces the same challenges as the West African cocoa sector as a whole,

including low productivity and poverty in farming communities, limited infrastructure, a rapidly aging farming population, and few examples of strong cooperatives or other forms of smallholder business organizations.

But there is hope. Some of the global chocolate industry's biggest players, such as Ferrero, Mars and Hershey, have expressed their commitment to achieving a sustainable cocoa sector by the year 2020. Introducing certification standards in the cocoa sector is expected to create financial and non-financial incentives for cocoa producers to sustainably increase cocoa productivity and quality.

## 2. Proposed Solutions

Given the complexity of biophysical and organizational constraints faced by cocoa growers today, efforts to solve challenges in the sector need to be reinvigorated using a broader, holistic approach. Considering the economic importance of cocoa, different pathways of increasing cocoa production have emerged. Yet, different intensification pathways result in either positive or negative ecological and social impacts. It is therefore important to increase the benefits from diversification of cocoa cultivation, and offer small-scale farmers opportunities and strategies to reconcile productivity increases, system sustainability and climate change resilience.

We argue that diverse shaded cocoa systems, also referred to as "cocoa agroforestry systems" (cAFS), provide more sustainable livelihood benefits than the mono-cropping, full-sun cocoa systems that have been promoted in the past. cAFS also meet the requirements of certification bodies in terms of provision of essential ecosystem services and reduced risks of yield losses induced by extreme weather conditions caused by climate change. Integrating companion crops (food crops and fruit trees) in cocoa plantations is a gender-sensitive strategy. Women are expected to contribute a substantial

amount of labour in the cocoa farm of their husbands, though the income from cocoa sales is predominantly managed by men. On the contrary, harvest and sales of food crops and fruits – irrespective of their location – are generally controlled by women, allowing them to generate their own share of income from cocoa production.





### 3. Intended Outcomes and Impacts

Currently, there are about 800,000 cocoa growers in Cameroon who stand to benefit from strategies and technologies aimed at sustainably intensifying and diversifying their cocoa plantations; and many more are to invest in new plantations in the coming years. Cocoa producers in the Centre region of Cameroon who integrate a combination of three local fruit trees in their cocoa farms could obtain much higher net present values (NPVs) (19,398 €/ha) than those who grow cocoa alone (negative NPV), according to a study by Jaza et al. (2015). Substantial additional income is generated from cocoa agroforests diversified with high-value tree species, such as safou (*Dacryodes edulis*), bush mango (*Irvingia gabonensis*) and njansang (*Ricinodendron heudelotii*). Other diversification options with a large number of tree species are also feasible, depending on access to particular markets (avocado, citrus, palm trees, among others), for soil fertility maintenance (*Ceiba pentandra*, *Ficus mucoso*, leguminous trees), and for household timber production (*Terminalia superba*, *Milicia exselsa*). In addition, such diversification may help the farm get certified, bringing in a premium price for the owner. In Ghana for example, Fairtrade premiums added an extra income of US\$36 per year to cooperative members, but this could have been doubled if the entire harvest would have been sold as 'certified'. Apart from the premiums, major income increases were related to yield improvements thanks to training on good agricultural practices provided through the certification schemes. Experience in Côte d'Ivoire has shown that it is possible to double yields to reach at least 1 tonne/ha with a combination of good quality planting material and appropriate agricultural practices (pest and disease management, fertilization, pruning, shade management, etc.).

In addition to the expected increased productivity and income, long-term sustainable development

co-benefits include better food and nutritional security for local people through diversification of systems and jobs created through cocoa-based enterprises. Tree growing practices generate benefits such as construction and fuel wood, fodder, environmental and amenity benefits, thereby increasing livelihood benefits for poor farmers. While cocoa establishment in Cameroon was traditionally done by cutting down forests, farmers have proven their ability to set up diversified cocoa AFS on savannah, by providing initial shade to cocoa with banana and/or palm trees, and introducing different types of shade trees. Expansion of the cocoa area therefore is no longer synonymous with deforestation, hence contributing to REDD+ and enhancing biodiversity in areas adjacent to forests.

The promotion of more sustainably grown cocoa in Cameroon is not without risks. Major investments will be required to put in place support programmes and strengthen service providers to avail high quality and diversified germplasm and deliver training and coaching on good agricultural practices and agroforestry techniques. Currently, there is sufficient interest from the Cameroon government, donors and the private sector to fund such programmes; but what is going to happen when this observed growth slows down? The consequences and challenges of recent reforms and different support programmes in the cocoa sector need to be researched on a continuous basis in order to guide decision-making. Another factor for success is farmers' interest in improving cocoa and overall system productivity in existing plantations and further expansion of the area under cocoa cultivation. Over the last couple of years, interest has grown because of consistently high cocoa prices. However, 2017 has seen a significant drop in the world market price, which may discourage cocoa growers, especially if the downward trend continues over several seasons.

## 4. Design and Delivery Options

ICRAF proposes to partner with firms involved in sustainable cocoa supply chains to implement, monitor, track and evaluate sustainability practices at a landscape level. Companies will be assisted to meet their sustainability goals by implementing agroforestry packages and identifying appropriate indicators to monitor performance.

Specific interventions include the following:

- Intensify and diversify cocoa farms using agroforestry technologies in order to provide ecological services and diversify income sources
- Strengthen capacities of farmer organizations to participate in sustainable supply chains through increased (youth) entrepreneurship in cocoa and associated crops
- Develop indicators to monitor progress towards sustainability at the landscape level
- Provide supply chain managers with a refined understanding of issues and trade-offs involved in decision-making related to different certification schemes relevant to meet sustainable targets
- Collaborate with partners to develop an interactive, and holistic tool that can serve as a decision support tool for sustainable supply chain at landscape level
- Assess the costs and benefits for both lead firms and farmers to participate in sustainable supply chains
- Analyse the political economy of cocoa production and marketing



*By using healthy quality planting material, and applying good agricultural practices, cocoa farmers in Cote d'Ivoire were able to increase yields to 1 tonne per ha.*

## 5. Key Partners

Key partners include:

- Private sector: cocoa buyers who operate in Cameroon and are interested in sustainability of the cocoa supply chain: Telcar/Cargill, OLAM Cam, Ferrero, Barry Callebaut, Theobroma (NL), among others
- Rainforest Alliance, based in Cameroon, interested in cocoa certification
- NGOs and development organizations
- ProCISA; Green Innovation Centre Initiative on Cocoa, implemented by GIZ
- Regulating bodies: National Cocoa and Coffee Board of Cameroon, Cameroon's Cocoa Development Authority (SODECAO), Cocoa and Coffee Interprofessional Council (CCIC) and its "New Generation" scheme
- Ministry of Agriculture and Rural Development (MINADER), in particular its agricultural extension system
- Cocoa producer cooperatives
- Other research organizations: Institut de Recherche pour le Développement Agricole (IRAD), CIRAD, IITA
- World Cocoa Foundation and Cocoa Livelihoods Programme
- Micro-finance institutions
- Input suppliers

## 6. Additional Knowledge, Financial and Other Needs

While much effort has gone into the development of high performing and clean planting material for cocoa at national and regional level (led by IRAD, in collaboration with CIRAD, IITA and the World Cocoa Foundation in Cameroon), the following questions remain to be answered:

- To what extent is the planting material available suitable in different agro-ecological conditions (soil conditions), management practices (especially under different shade levels) and climate variability?
- What are the most effective and efficient distribution and delivery systems for improved planting materials to smallholder farmers?

On the cocoa agroforest side, focus so far has been on promoting good agricultural practices through the farmer field school approach. ICRAF has worked towards integrating high-value (local) tree species into existing cocoa plantations with the aim of increasing the co-benefits of cocoa farming using the participatory tree domestication approach, but only in a few pilot sites in the South-West, South, Centre and East regions of Cameroon. Nevertheless, there has been little systematic research on the ecology

of cocoa agroforests, interactions and best practices in order to optimize productivity of complex and diversified cocoa farms. Remaining issues for research include:

- What are the most adequate diversification options to different conditions of site and market access?
- What are the trade-offs and synergies between cocoa, other production and other ecosystem services according to the composition and management of the systems in different agro-ecological zones?
- What shade intensity and fertilization practices are appropriate to reduce pests and diseases outbreaks under different agro-ecological conditions?
- What shade intensity and fertilization practices are appropriate to enhance productivity under climate variability and extremes?
- What Integrated Soil Fertility Management technologies can be deployed for increased production and better bean quality to meet the premium market demand and flavour characteristics?

The following questions related to the market and policy environment also need answers if sustainable cocoa supply chains are to be promoted in Cameroon:

- What type of incentives are required (and when) to promote rehabilitation and diversification?
- What strategies can be used to improve women's and youth participation in cocoa value chains?
- What type of value adding technologies are feasible and profitable, and at what level?
- What approaches are most effective to strengthen stakeholders' capacities and to share knowledge and experiences on developing sustainable cocoa supply chains?

- What are the socio-economic factors shaping farmers' behaviours towards adoption and retention of technologies for the advancement of cocoa production?

While demand for certified cocoa is expanding, research is yet to provide adequate solutions regarding effective institutional arrangements that benefit smallholders and how achievements can be met at a landscape level. Important questions arise, such as:

- What are the capacities and potential of cooperatives and resource-poor farmers to benefit from participation in sustainable supply chains?
- How can certification schemes help address the constraints and opportunities faced by cocoa growers, cooperatives and other players in the cocoa chain?

#### References

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