

# Cultivated ecosystem management *in the Cameroon rainforest zone:* identification of stakeholders *and constraints on sustainability*

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*Population growth, together with the growing demand for foodstuffs in urban areas, is increasing pressure on the rainforest's resources. The following is an example from Cameroon of a contribution to better sustainable management of cultivated ecosystems in those areas using a set of methods involving advisory support to, and participatory learning by, farmers, whereby farmers' innovations are noted, supported and put to use.*

**A**ccording to the Food and Agriculture Organisation of the United Nations (1999), Cameroon's annual deforestation rate is 6%, 85% of which may be ascribed to family farms. In order to develop a repertoire of "best practices" in natural resources management based on advisory support, the project "**Innovations and farmer knowledge in the management of forest ecosystems in West and Central Africa: Diversification of forestry systems and perennial food crops**" sought to identify current practices among farmers in those areas and their impact on natural resources, and to identify major constraints on the sustainable management of cultivated ecosystems. Examples of how it works are two of the project's pilot villages, Melen and Bokito in southeastern Cameroon.

## **Two forest areas with edge settlements dependent on natural resources**

What sets Melen and Bokito apart is their ecology, their population density, their pressure on farmland, and their roads. Melen, located in a dense bimodal humid forest area, has low population density (10 inhabitants per square kilometre), puts moderate pressure on farmland and has poor roads. Bokito, in the forest-savannah transition zone, has relatively high population density (70 inhabitants per square kilometre), puts strong pressure on arable land and is well served by roads.

## **A project in which scientists and stakeholders cooperate on cultivated ecosystems management**

This study has brought together agricultural research, universities, NGOs, farmers and the people of the two sites in southern Cameroon. It was implemented with the support of resource persons and students working with the farmers. Data collection was through surveys and interviews with a sample of 40 farmers in each site. Resource persons, such as local authorities (traditional chiefs, religious leaders), agricultural extensionists or farmers' organisations operating at the study sites were also asked how they see farmers' practices impinging on ecosystem development in their areas. Finally, field visits and briefings were held regularly to roll up the findings of the surveys and interviews.

## **A changing economic and social context**

Changes in the ecology and the local social environment, and even broader alterations of the regional, national or global economic environment, affect the fate of family farms. Indeed, the economic crisis of the 1990s, which affected cash crop prices, and the drop in government support were among the factors that led farmers to diversify and intensify their agropastoral activities. ...



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▲ Current practices among farmers and their impact on natural resources were studied in pilot villages in Southeastern Cameroon.

They focused more on fruit and food production (roots, tubers, plantain, maize in Cameroon and Ghana, rice and groundnuts in Guinea) to meet growing demand in the cities, which was spurred by a significant increase in urban populations (3% annually) and improved roads.

### Growth in farming at the expense of the forest

To adapt to these changes, rural people spontaneously adopted three types of innovations: organisational, technical and resource management (fish and wildlife).

They are moving to new agricultural practices such as a short or “interrupted” fallow cycle, which, over time, saps the land’s productivity. Once virtually unknown in the study sites, monoculture market gardening too is slowly moving in, to the detriment of crop sequences. Bottomlands once considered unsuitable for agriculture are also being developed. Traditional slash and burn agriculture remains important.

Thus, older and younger farmers take divergent strategies: maintenance, of the cocoa- and coffee-based systems brought by colonisation, for survival or development of systems based on market garden crops for family food and income. Agricultural activities are now emphasised, to the detriment of other forest-related activities (hunting, fishing,

non-timber forest products), whose resources are steadily declining and whose practice is no longer regulated by the local people. Food crops were formerly women’s work, but that too is changing with the arrival of new players, as these crops are no longer grown only for subsistence: they now generate some income, like the so-called cash crops.

### Farmers with varied strategies

Farmers react differently to change depending on their age, their production targets, their family situation and their orientation, towards marketing or subsistence. Four types of farmers have been identified, with quite diverse strategies for managing cultivated ecosystems (fallow periods, crop type, use of inputs, etc.). Such producers are more or less open to innovations and their interest in looking for “useful” information is variable.

Among younger farmers (25-35 years), for example, there is a trend towards monoculture-type agriculture with high agricultural inputs, with more pronounced fertiliser use in the forest-savannah transition zone and with greater yields than in other types of traditional farms (cocoa, coffee). Thus, these farmers have new needs and new demands (inputs, labour, financing, product marketing), which in turn call for new services to be developed (financing systems, training, and advisory support).

### From information dissemination to its assimilation by end users

These various types of farmers have access to many and varied sources of agricultural guidance and information. Besides the most active institutional structures (parastatal regulatory bodies, Ministry of Agriculture extensionists, specialised radio broadcasts), there are NGOs, farmers’ organisations, social groups (tontines, contribution arrangements, religious groups, etc.) and private operators, particularly sellers of agricultural inputs. Farmers do not always pay strict attention to the information they get from these sources. In managing their farms, farmers usually pick and choose from the techniques and practices offered, which they combine with their own experience. The choice will vary depending on the physical and financial resources available to heads of households and the growth strategy they adopt to enhance the productivity of their land.

Social groups have a unique role in relaying information on innovations, particularly in the area of agriculture. They cater for various social sensibilities, with structural and organisational affinities. Among the motivations for forming such groups is the members’ willingness to exchange experiences and to pool their energies to reduce the burden of work and/or expand the area under cultivation.

## Varied actions by stakeholders in cultivated ecosystem management

In terms of forest ecosystems, the actions and impacts of these various stakeholders are observed at three levels:

■ **At the first level** are stakeholders with a direct impact on cultivated ecosystems in terms of cultivation practices and techniques. Such impact depends on the physical, human and financial resources at their disposal: farmers, farmers' or producers' organisations, working groups, tontines and religious associations.

■ **At the second level** are the stakeholders having great influence over the decisions made by the first group: institutional management structures, NGOs. Their support is oriented more towards improving the productivity of cultivated land and rational resource management.

■ **At the third level** are the sellers and buyers of agricultural produce. Their main targets are cocoa farmers and those who are moving towards monoculture. They have close relations with the level-2 stakeholders—to provide farmers with information on the products they offer, but also to identify their targets.

## Best practices for the sustainable management of cultivated ecosystems

In the study area, the gradual emergence of innovative cropping systems and agricultural practices brings with it new farmer needs and demands:

■ inputs (fertiliser, herbicides) but also labour (land preparation, crop maintenance);

■ training on farming techniques for new crops; and

■ advisory support in the management of many activities with many different themes: forward work programme, financing, use of income, etc.

In these rapidly changing forest areas, sustainable management of cultivated ecosystems requires coordinated joint actions by stakeholders at several levels: implementation of “best practices” by operators; regulation of access to and use of village natural resources; application by the State, in consultation with the people, of a natural forest resource conservation policy. These changes seem essential, and if other parts of the world are to be able to adapt them, they must take into account the variety of strategies used by individual farmers, the

communication difficulties that may still exist (distance, language), and the problems involved in developing food product sales (marketing, product processing and storage, etc.). ■

### Partnership

**Lead organisation:** Institute of Agricultural Research for Development (IRAD, Cameroon)

**Partners:** Association for the Development of Farm Workers of the Centre (ADEAC Cameroon) Centre d'Appui aux Organisations Professionnelles Agricoles (Guinée), Agricultural Research for Development (CIRAD, France), Citrus Growers Association (Ghana), Fédération Nationale des Planteurs de Café de Guinée, Institut de Recherche Agronomique de Guinée (IRAG), Ministry of Food and Agriculture (MoFA) / Eastern Region and District Extension Service (Ghana), Oil Palm Research Institute (Ghana), Service d'Appui aux Initiatives Locales de Développement (SAILD, Cameroon), Service National de la Promotion Rurale et de la Vulgarisation (SNPRV, Guinée), SOS Vert: Association pour l'Économie Solidaire et le Développement Vert (non-profit association, Cameroon), University of Dschang (UDS), Faculty of Agronomy and Agricultural Sciences (FASA, Cameroon), University of Ghana.

**Countries involved:** Cameroon, Ghana, Guinea

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