



Peri-urban agroecological market gardening in Côte d'Ivoire (MARIGO)

In West Africa, peri-urban market gardening is often practiced in monocultures with excessive doses of chemical inputs, often unlicensed and overdosed. The low level of production of the main crops is not sufficient to supply the local market, leading to reliance on imports. Moreover, due to the lack of control and supervision, the sanitary quality of the production is not guaranteed. Recent studies have revealed that the vegetable sector in Côte d'Ivoire is poorly structured and receives little support from public authorities. In response to these challenges, the MARIGO project was launched to steer the agroecological transition of peri-urban market gardening areas around Ivorian cities.

General presentation of the project



General objective

To promote the agroecological transition in peri-urban areas and contribute to a sustainable and productive transformation of agrifood systems in Côte d'Ivoire.



Specific objectives

- To analyse the supply and demand of vegetables.
- To generate and disseminate knowledge.
- To explore and experiment with innovative approaches.
- To collaborate in designing locally adapted and sustainable solutions.
- To train the actors of tomorrow.



Intervention strategy

The MARIGO project, which unites a consortium of experts and trainers from national and international institutions, seeks to establish a national platform encompassing all stakeholders in the sector. The objective is to collaborate to jointly develop sustainable solutions to the challenges faced by the Ivorian vegetable sector in the context of climate change. Using a consultation process based on collective diagnosis, the project fosters iterative exchanges. It revolves around six interactive thematic working groups, bringing together experts with multidisciplinary skills.



Expected results

- Contribution to the organisation of a political dialogue on agroecology.
- Consolidation of multi-stakeholder platforms on market gardening.
- Availability of pilot equipment for food preservation.
- Creation of a network of certified farmers who commit to comply with a local charter of good agroecological or organic practices.

- Creation of local networks of stakeholders around vegetable production, in line with the principles of short supply chains and the circular economy.
- Development of a varietal catalogue of local and exotic species.
- Production of a guide on pests and diseases affecting vegetable crops.
- Development of a training module in agroecology for technician and engineering students at ESA School of Agriculture
- Training of lead vegetable growers in agroecology at each study site.
- Participation in the creation of micro-enterprises aligned with the needs of agroecological professions.
- Valorisation of local knowledge on vegetable production and processing (recipes) and promotion of their health and nutritional qualities.



Partners

French Agricultural Research Centre for International Development (CIRAD), in collaboration with a wide range of other partners.



Timescale

48 months (2020–2024).



Budget

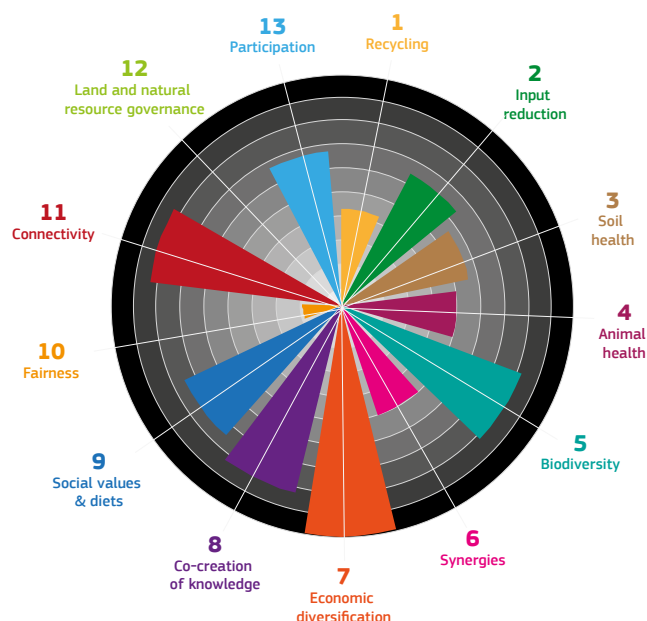
EUR 2,000,000.



Intervention area



Agroecological classification of the project according to the 13 principles of the HLPE



1 Recycling

Nutrient and biomass recycling is partially integrated into the practices promoted by the project. It builds on the observation that soils in peri-urban market gardening areas of Côte d'Ivoire are becoming depleted due to intensified farming practices and insufficient organic matter inputs. A significant component therefore focuses on soil fertility management and the promotion of organic fertilisers and compost derived from household waste. The project also includes a component addressing post-harvest losses through the promotion of technical innovations.

2 Input reduction

The project is strongly committed to reducing the use of synthetic inputs. It aims to actively promote the reduction of the use of non-organic inputs. In the urban and peri-urban areas of Côte d'Ivoire, conventional farming practices dominate vegetable production, frequently relying on unlicensed chemical inputs used in excessive quantities on large plots. These practices generate adverse effects, such as declining product quality, reduced biodiversity, increased environmental pollution and soil degradation. Although some aspects such as water, seed and energy conservation are not explicitly mentioned, they are consistent with the project's orientation.

3 Soil health

The project contains a specific component on soil health. It aims to develop solutions in co-construction with local stakeholders regarding fertilisation and use of organic matter. This participatory process is based on an assessment of soil health and carbon sequestration capacity across different cropping and production systems (a core project activity). It also aims to identify agronomic needs for soil amendments as

well as the constraints linked to fertilisation and organic matter production. Within this framework, the specific challenges faced by livestock keepers, whose practices are affected by climate change, are also considered.

4 Animal health

The issue of improving animal welfare and health is not explicitly addressed, mainly due to the project's specific focus on market gardening. However, the project encouraged stronger interactions between farming and livestock through the promotion and use of manure and other organic by-products. A study also estimated the use of such practices, assessed their potential, and mapped available sources of these resources.

5 Biodiversity

The project places great importance on biodiversity within the ecosystem. As part of the diversification of ecosystem services, agroecology focuses on the promotion of fruit tree cultivation, agroforestry and beekeeping. Beekeeping is considered not only as a technique that improves pollination of cultivated plants, but also as an additional source of income and a reliable indicator of farm health, particularly in relation to exposure to chemical pesticides. Recognising that local farmer-saved seeds are better adapted and more resistant to climate change, the project focuses on the identification and collection of indigenous seeds to build a vegetable seed bank. These species are assessed according to their agronomic potential, nutritional value and resistance to pests and diseases

6 Synergies

The integration of biological components to optimise ecosystem services at farm and landscape level is partially included in the project. An important component is the improvement of plant health through the promotion of the principles of agroecological cropping systems, which are based mainly on crops diversity, spatial association and crop rotation. To foster synergies and natural balances, non-cultivated plants, such as



grass strips, are integrated into vegetable production systems. Biological methods of pest prevention and control, such as the use of plant extracts, entomopathogens, and pheromones, are prioritised as alternatives to chemical solutions. The aim is to break the vicious cycle of growing dependence on pesticides to combat the frequent emergence of new pests, which further reduces natural enemies that could otherwise regulate them.

7 Economic diversification

The project follows an approach of economic diversification. Its objective is to improve farmers' resilience to climate shocks and market volatility by restoring and enhancing the multifunctionality of vegetable farming systems. A large proportion of post-harvest losses is linked to distribution activities, such as transport and marketing. The project therefore aims to introduce technological innovations to improve the preservation and sanitary quality of vegetables while maintaining their nutritional and organoleptic qualities. The combination of local know-how in processing and research expertise in technology aims to identify the most appropriate solutions for vegetable production. For example, it is important to assess the effects of drying (a traditional conservation method) or UV light treatments on the nutritional and sanitary quality of food.

8 Co-creation of knowledge

The project values the principles of co-creation and knowledge sharing. It proposes the establishment of a multi-stakeholder platform with the vision of "generating the well-being and prosperity of all stakeholders in the value chains." The platform brings together farmers, trainers, researchers, actors in the vegetable sector, sectoral policy-makers, and members of civil society. It is designed as a space for learning and change to collectively develop sustainable solutions to the challenges facing the vegetable sector in Côte d'Ivoire, particularly in a context of climate change. The platform fosters connections between stakeholders in the vegetable value chain, whether organised or not, and with diverse backgrounds and interests. Its aim is to identify challenges and opportunities and to find ways to achieve their objectives sustainably.

9 Social values & diets

The project respects social values and diets. At the outset of the project, the sanitary quality of products sold on local markets from vegetable farming, mainly conventional, was not guaranteed. Such products are rarely inspected and are little studied by research, for example regarding pesticide residues, heavy metals, and pathogenic germs. The project therefore aimed to meet growing consumer demand for healthy, locally produced vegetables. Indeed, the production level of the main vegetable crops is often insufficient to supply the local market, making imports necessary. In peri-urban areas, exotic vegetables with high added value are often prioritised over local vegetables, even though the latter are more robust, easier to grow, and richer in nutrients and vitamins. The project values local knowledge on the production and processing of traditional vegetables, while promoting their sanitary and nutritional qualities.

10 Fairness

The principle of social justice is only weakly integrated into the project. The project is based on a process of shared governance ('*en-commun*') model, which aims to bring together initially competing actors to find solutions by seeking consensus. One example provided is the social impact of pacifying relations between farmers and herders regarding access to resources such as water and pastures. Although the project claims to target women as the main producers of vegetable crops, women's empowerment is not identified as an objective or an expected outcome, and the logical framework contains no sex-disaggregated indicators. Furthermore, no gender or social study is foreseen, making it impossible to measure the project's impact on inequalities. This risk is reinforced by the profile of the implementing partners, all from the natural or agricultural sciences, with a remarkable absence of representatives from social sciences and the legal field.

Labelling can be a guarantee of quality to improve productions and ensure better remuneration for producers. However, it is essential to ensure that such practice does not create a niche market accessible only to the middle and wealthy consumers, which would exclude low-income and poor



consumers. Unfortunately, the issue of the accessibility of labelled agroecological products, in terms of nutritional and health quality, is often overlooked.

11 Connectivity

The project is an action-research initiative whose intervention logic is to develop mutually beneficial interactions (mutualism) between actors in peri-urban areas, particularly between vegetable growers and herders, and between producers and consumers. This approach explicitly promotes a local circular economy and short supply chains. The development of a circular economy system among stakeholders in the same territory combined with the adoption of innovative agroecological practices, is expected to make vegetable production systems less risky (through diversification), safer (with regard to hygiene, contamination, and pollution), and more resilient to climate variability.

12 Land and natural resource governance

The project is not engaged in promoting responsible governance of land and natural resources.

13 Participation

The project is committed to the principle of participation. One of the specific objectives of the project is to create a national multi-stakeholder platform federating existing networks and bringing together actors, partners and scientific support institutions related to market gardening value chains. It advocates for the

development of standards and/or labels in order to promote products derived from agroecological agriculture. Accordingly, a set of specifications for platform members is drawn up and used for political advocacy to improve regulations on the ecological and sanitary quality of agricultural products. Strengthening agroecological vegetable production systems through advocacy with public decision-makers, communication with civil society actors, and the development of academic training modules are all integrated into the project. The multi-stakeholder platform is thus intended to strengthen political dialogue in favour of agroecology.

SUCCESS FACTORS / CHALLENGES

- ✦ The project places a strong emphasis on agroecological practices to reduce pollution linked to the excessive use of chemical inputs in conventional vegetable farming in Côte d'Ivoire.
- ✦ The project adopts a multi-stakeholder action-research approach, which aims to provide scientific evidence on the environmental and health impacts of agroecological practices. It also seeks to identify the drivers and barriers to the agroecological transition.
- ✦ The project encourages short supply chains and value chains by promoting local production as an alternative to imports.
- ✦ The project foresees strengthening political dialogue in favour of agroecology.
- The project involves many scientists from the fields of biology and agronomy but lacks representation from the social sciences and legal fields.
- Gender issues are very marginally addressed despite the central role of women in market gardening.
- Issues related to access to land or to quality food are not addressed.

