

Integrated Agro-Business Strategies for Improvement of Food Safety and Security in the Democratic Republic of Congo

Submitted by

MAMBO INITIATIVES AGAINST HUNGER & POVERTY

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1. PRIMARY INFORMATION

Project Title: Integrated Agro-Business Strategies for Improvement of Food Safety and Security in the Democratic Republic of Congo

Organization name : Mambo Initiatives Against Hunger and Poverty Inc.

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Estimated duration : Short-Term (1-5 years), Medium-Term (6-15 years) and Long-Term (from 16 years)

Funds sought for the project:

- **Fund (in US\$)** : 14,5 million (Short-Term), 7 million (Medium-Term) and 4,5 million (Long-Term)
- **Equipment** : 2 rice-processing factories, 2 flour-milling, 2 generators, 4 complete tractors and vehicles (in Short-Term), 1 Tissue culture laboratory, 1 juice-processing factory, 1 jam factory, 2 generators, 2 complete tractors and vehicles (in Medium and Long-Terms)
- **Partners** :

Area covered in DRC : 2 Provinces: Maniema (in the East) and Bas-Congo (in the West)

2. PROJECT GOAL AND OBJECTIVES

2.1 Goal

Sustaining food safety and income security and contribute to sustainable economic growth of the Democratic Republic of Congo (DRC) where agricultural development has been disrupted by political conflicts.

2.2 Objectives

This project targets to:

- Increase the sustainable improvement of the agricultural productivity and food products handling and management in DRC through the combination of sound scientific research, advanced technical assistance and human resource development.
- Build strategies and capacity for the implementation of strong partnership and investment on improved techniques for agricultural chains from production, industrialization and marketing in DRC.
- Strengthen a national framework for producing and using improved seeds and vegetative planting material which will accommodate emerging pests and diseases with good market qualities.

- Secure income to households' farmers by developing safe markets for their agricultural products.

3. BACGROUND

3.1 General information on DRC

The RDC is located in central Africa at horse on Ecuador, it extends from the Atlantic Ocean to the plate of the East and corresponds to the major part of the basin of the Congo river, on a surface of 2 345 000 km². It is the second largest country on the continent after Algeria. It includes/understands four types of climates: equatorial climate, wet tropical climate, tropical climate at prolonged dry season and littoral climate. The North of the country, under influence of Ecuador, presents a stronger and regular pluviometry.

It is limited to North by Sudan and the Central African Republic, to the South by Angola and Zambia, to the East by Tanzania, Rwanda, Burundi and Uganda, and in the West by the Atlantic Ocean, the Enclave of Cabinda and the Republic of Congo.

Fig. 1. Geographical map of Africa showing the position of DRC in the continent

Its population and its density are estimated respectively at approximately 71 420 000 inhabitants and 26 hab/km² (FAO, 2013). This population concentrates on the plates, in savanna, close to the Congo river and the lakes; in the North and the Center of the country, the fields of the jungle are almost empty. The rural migration exacerbated by the wars inflated the cities and especially Kinshasa, the capital.

Fig. 2. Administrative map of DRC showing all 11 Provinces

The RDC has a significant potential of natural resources and mineral. Its economy is strongly turned towards the export of the mining products (diamond, gold, copper, Colombo tantalite (coltan), bauxite, iron, manganese, coal, oil, methane, bituminous schist, cobalt...). No advanced technology industry was developed.

Agriculture remains the principal activity in rural medium, but suffers from a total lack of mechanization. The principal agricultural resources are the cereal cultures, the roots and tubers, the bananas, the coffee, wood and the caoutchouc. Moreover, the transportation routes are almost non-existent.

Finally let us announce that the country is classified among the countries with low income and food deficit and the least advanced countries. The Report/ratio on the human development (2007) of the UNDP classifies the RDC to the 168th out of 177

countries. The proportion of the population living below the poverty line is estimated at 70% including extremely poor 52%.

3.2 Context of food safety

The investigation of the World Food Program (WFP, 2008), into food safety in RDC, reveals that agriculture is the principal activity of 92.6% of the rural households (that varies from 83.3% in the South-Kivu with 97.1% in Low-Congo) and contributes to a total value of 64.4% in the food household consumption in the rural world. Fishing constitutes the second activity, followed trade of the agricultural produce, breeding of the smaller live-stock and finally of the craft industry.

Project on Agri-Business Strategies in DR Congo

Logical Framework

Project title: Integrated Agro-Business Strategies for Improvement of Food Safety and Income Security in the Democrati of Congo (ABIFIS)

Project Goal: Sustaining food safety and income security and contribute to sustainable economic growth of the Democrati development has been disrupted by political conflicts

	Narrative summary	Objectively verifiable indicators
Impact	Contribution to sustainable food safety and economic growth of the DRC	<ul style="list-style-type: none"> • Food requirement coverage rate: increase from 70% at present to 90% in 2020 • Poverty rate: reduction from 60% at present to 40% in 2020
Effects	1. Improved agricultural productivity	- Production of rice, maize, cassava, potatoes and bananas increase up to 50% in 2020
	2. Implemented agro-industry investment	- Agricultural-processing factories/ industries well installed in the project sites
	3. Developed safe markets for improved agricultural products	- Marketed agricultural produce increase up to 50% in 2020
	4. Sustained income security of household' farmers	- Number of permanent jobs created increase up to 60% of women

Outcomes by Period and Component	IN SHORT-TERM (1-5 years)	
	<p>1. Improved seeds' production</p> <p>Seeds of Rice (var. Nerica), Maize (var. QPM) and Cassava (var. Mvuama) produced through seed farming and distributed to associated farmers in Maniema province</p>	<p>1.1 Quantity and quality of seeds produced permanently: improved varieties of Nerica Rice, QPM Maize and Mvuama Cassava</p> <p>1.2 Produced varieties are distributed to farmers/producers associated with the MAMBO INITIATIVES</p>
	<p>2. Agricultural production</p> <p>2.1 Produced rice, maize and cassava by farmers in Maniema province are bought up by the MAMBO INITIATIVES under motivating prices</p>	<p>2.1 Farmers/producers are motivated in producing more Rice, Maize and Cassava</p> <p>2.2 Quantity of agricultural products increased by large scale plantations installed with up to 1000 ha for each crop</p> <p>3. 1 rice-processing factory, 1 flour-milling and 3 storehouses constructed in each site: Kasongo and Kindu</p>
	<p>2.2 Large scale plantations of rice, maize and cassava set up by the MAMBO INITIATIVES in Maniema province</p>	<p>4.1 1st level of market: the MAMBO INITIATIVES buy all agricultural products from farmers</p> <p>4.2 2nd level of market: the MAMBO INITIATIVES sell high-value processed products</p>
	<p>3. Agro-industry building</p> <p>A rice-processing factory, a flour-milling industry and a ware-house for storage set up</p>	<p>5. Equipment purchased: 2 rice-processing factories, 2 flour-milling, 2 generators, 4 complete tractors and vehicles</p>
	<p>4. Food products and Marketing</p>	<p>•</p>

Improved product quality, quantity and safety of rice, maize and cassava processed and delivered to national, regional and international markets

5. Project organization and management

Satisfactory project management

IN MEDIUM-TERM (6-15 years)

1. Improved seeds' production

Seeds of Potatoes and Bananas produced through a Tissue Culture Laboratory installed in Kasangulu and distributed to associated producers in Bas-Congo province

2. Agricultural production

2.1 Produced potatoes and bananas by farmers in Bas-Congo province are bought up by the MAMBO FOUNDATION under motivating prices

2.2 Large scale plantations of potatoes and bananas set up by the MAMBO FOUNDATION in Bas-Congo province

3. Agro-industry building

A rice-processing factory, a flour-milling industry and a ware-house for storage set

1.1 Quantity and quality of seeds produced permanently: improved varieties of Potatoes, Banana 'cv. Gros Michel' and Plantain 'French cv. BUBI'.

1.2 Produced varieties are distributed to farmers/producers associated with the MAMBO INITIATIVES

2.1 Farmers/producers are motivated in producing more Potatoes and Banana/Plantain

2.2 Quantity of agricultural products increased by large scale plantations installed with up to 1000 ha for each crop

3. 1 Tissue culture laboratory, 1 juice-processing factory, 1 jam factory and 2 storehouses constructed in each site: Kasangulu and Kinshasa

4.1 1st level of market: the MAMBO INITIATIVES buy all agricultural products from farmers

4.2 2nd level of market: the MAMBO INITIATIVES sell high-value processed products

5. Equipment purchased: 1 Tissue culture laboratory, 1 juice-processing factory, 1 jam factory, 2 generators, 2 complete tractors and vehicles

up

4. Food products and Marketing

Improved potatoes, bananas
quality, quantity and safety
processed and delivered to
national and regional

5. Project organization and management

Satisfactory project
management

Households having a food consumption limits account for 30% of the surveyed sample. They are very representative in the East of the country:

- Maniema: 52%
- Katanga: 35%
- South-Kivu: 33%
- North-Kivu: 31%
- Oriental Province: 32%

These households are vulnerable to periods given of the year, during which endogenous or exogenous shocks can affect their capacity to be supplied in foodstuffs.

Indeed, approximately 70% of the Congolese population lives in a situation of poverty general information, mainly caused by a long period of war and the residual conflicts in the East of the country (1996-2003). The food situation is characterized by the fall from 30 to 40% of the food agricultural productions, the fall of food consumption corresponding from now on to 1.650 kcal/person/day against the necessary minimum in RDC which is of 2.300 kcal/person/day and the increase in the rate of malnutrition of the children and the adults (DSCR, 2012).

In spite of the enormous agricultural potential of the country, approximately 80 million hectares profiting of more than 8 months of rains/year, the deficit of the production is estimated between 30 and 40% because of the multiple constraints:

- perpetual displacement of the population and reduction of the surfaces cultivated because of the insecurity,
- degradation of the infrastructures limiting the access to the markets,
- absence of framing of the farmers,
- access limited to the agricultural tools and fertilizers,
- propagation of the diseases of the crop plants,
- poor yield of the cultures,
- bad condition of the roads of agricultural service road.

In comparison with the socio-economic situation of the country, the strategies of survival of the population are more random. The rate of total acute malnutrition is among 13% and that of the chronic malnutrition of 38% at the national level but with significant disparities according to areas'. The extreme poverty which restricts the access of the households to food is one of the principal causes of the high rates of malnutrition in RDC. The access to food is limited at the same time in quantity and quality.

3.3 Road conditions

Roads throughout the DRC are generally in poor conditions, and often impassable in the rainy season. Rural roads are currently the binding constraint on agricultural growth in DRC. In agriculture, better roads can drastically reduce the cost of inputs such as fertilizers, seeds and extension services (Gregory and Bumb, 2008; Ahmed and Hossain, 1990; Dercon et al., 2008). On the output side, better roads increase the scope of profitable trade, which in turn encourages on-farm investments to raising agricultural production (Binswanger et al., 1993; Khachatryan et al., 2005). This in turn should raise rural incomes, lower food prices, reduce spatial disparity in food prices and reduce dependence on food imports. Hence, better rural roads increase net returns to other worthy investments in both the farm and non-farm sectors.

Infrastructure was identified as a severe bottleneck on the DRC's development and on agricultural growth in particular. A recent World Bank review attributes the decapitalization of the DRC's agricultural sector to the collapse of the country's infrastructure network, and identifies infrastructure investments as one of the critical policy goals for the sector. The DRC government and its donors have likewise identified infrastructure as a priority sector.

4. PROJECT DESCRIPTION

4.1 Production of improved seed quality

The improvement of seed quality has always been a key component in the improvement of agricultural productivity. Vegetative propagated crops such as Bananas and Cassava traditionally have been important small farmer crops for both food security and income generation. Although in recent decades their productivity has come under increasing threat from the spread of emergent pests and diseases transmitted in vegetative planting material.

The total vegetative planting material which is used to expand production areas provides a simple indicator of the capacity of the system for cultivar deployment and seed multiplication. The Democratic Republic of Congo represents the biggest challenge with very limited public or private capacity to supply clean seed to farmers. Seed quality for production has several components: 1) physiological - germination rate and initial vigor; 2) genetic - heritable traits and purity, 3) sanitary - presence of pests and diseases (Almekinders & Louwaars, 1999). Improved yields can come from more uniform and vigorous crop stands, clean planting material free of pests and diseases and cultivars with greater yield potential or resistance to key pests and diseases.

Vegetative propagated crops have some of the characteristics which can slow the commercialization of planting material. They generally have low multiplication rates. The return per unit of seed planted is low (Table 1) and large volumes of seed are needed to plant a field. Additional processing may be needed to prepare planting material (sweet potato). In some cases, the edible material is also planting material (potatoes). However, in other cases, other plant parts are used for planting (bananas

and cassava). For these crops farmers cannot use village or town markets as a source of planting material. Riesco (2003) calculated that in terms of transportation and management cassava planting material was 27 times more expensive than seed for maize or beans.

Table 1: Vegetative propagated crops – characteristics of planting material and cultivar improvement

Crop	Type of Planting material	of Planting density plants/ha	Planting material kg/ha	Yield t/ha	Seed-borne Pests/ diseases
Potato	Edible tuber, true potato seed	25000 50000	-1500- 3000	10- 40	<i>PLRV, PVY, R. solanacearum, P. operculella</i>
Sweet potato	Vegetative shoot	15000 40000	-100-200	8-30	<i>SPCSV, SPMMV, SPCFV, SPLCV, Cylas spp, Alternaria spp, SPFMV,</i>
Cassava	Woody stem section with 5-7 nodes	8000 16000	-500- 1000	10- 30	<i>C. gloeosporioides, X. manihotis, AECMV, ACMV, EUCMV, CBS, FS</i>
Bananas/Plantains	Non-edible corm	1000 2000	-500 1600	-10- 200	<i>C. sordidus, nematodes, F. oxysporum pv. cubense, X. campestris pv. campestris, BBTV, BSV, BBrMV, CMV</i>

On the other hand, for vegetative propagated crops, pests and diseases are frequently transmitted from one field to another through infected planting material (Markham et al 2007) (Table 1). These problems may be accentuated by land use intensification and new pests and diseases may be introduced through the informal introduction of planting material across national borders. Local cultivars maintained by farmers may also be quite variable genetically. These represent opportunities for increased productivity through the improvement of the quality of planting material (physiological, genetic, sanitary), in spite of other characteristics favoring a local system of plant material. The actions to improve the quality of planting material may be feasible within the local seed system or may require new seed system capacity.

Mambo Initiatives Against Hunger and Poverty Inc.

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