

Agricultural activities and poverty reduction through job creation in rural areas: case of the rural municipality of Safo, in Mali

Moussa Aliou KEITA, An RU, Ruan ZEZONG

Abstract --- Our study was carried out in the villages of the rural municipality of Safo in order to understand the contribution of market gardening to the reduction of poverty and the employment opportunities it can offer. Field studies show that market gardening remains the main economic activity of the municipality, thus the main source of income in the municipality. It is practiced by 99% of families and occupies the whole population throughout the year. Women are as active as men, even more active during the rainy season than the latter, who turn to cereal crops. The main productions are vegetables (eggplant, cabbage, cucumber, onion, marrow, lettuce, okra ...), fruits (tomato, okra, banana). The main destination of the productions is the urban market of the capital Bamako at about twenty kilometers from the chief place of the municipality. One part enters the supplementation food and especially during the lean period. Currencies derived from market gardening are used to cover family expenses (purchases of cereals, capital goods, health coverage, schooling of children, social events and others). Market gardening is thus perceived as a means of economic and social empowerment but also as a source of food complementation in rural areas. Lastly, market gardening is of unprecedented importance in reducing poverty and creating jobs in the municipality.

Keywords: jobs creation, reduction of poverty, rural market gardening, unemployment

1 INTRODUCTION

Market garden is the name given to commercial horticulture and is defined as the science and art of cultivating, processing and marketing of fruits, vegetables, nuts and ornamental plants[1]

Market gardening is an ancient and secular practice of rural areas throughout Africa in general, and in Mali in particular. The practice of so-called vegetable crops precedes the colonial period. However, prior to the arrival of the settlers, fruit, and leaf or vegetable crops were more akin to community plantations where traditional trees and plants were valued for self-consumption rather than a real vegetable garden. Market gardening is widely practiced in Mali around five large market gardening areas spread between the center and the south of the country. Its rise and its practice for economic and commercial purposes refer more to the colonial era and the expansion of the cities, with the introduction of new varieties of fruits and vegetables more to solicit in the urban centers. In Mali, the first urban centers of introduction of market gardening by the colonizers are Bamako, Kati and Koulikoro; to meet the needs of the settlers on the spot in these localities [2]. The outskirts of Bamako have been involved in supplying the city since colonization. The banks of the Niger and the outskirts of the city were very early approached for the production of market gardening. The colonizers quickly became aware of the agricultural potentialities of the site and valued them [3]. The incomes from this activity guarantee economic accessibility to other foodstuffs. Vegetable crops appear to be an interesting alternative in the fight against household food insecurity in rural areas in the current context of the phenomenon of climate change, which causes recurrent cereal deficits [4]. Market-gardening is an interesting activity which offers employment perspectives and permits to absorb part of the urban unemployment and to occupy numerous seasonal workers

by guaranteeing a social peace [5]. Urban gardening (UG) as a component of urban agriculture (UA) has reached popularity during the last decades. This growing interest depends on several factors including the different functions that have been attributed to UG over the years, according to the economic level at the social, health and cultural levels [6]. The scarcity of farmers' resources (labour money and water) leads to a low internal margin of maneuver to increase the green vegetable production in the farms [7]. The population growth in the cities has led to changes in the structure of the activity of those cities. Agriculture which was formerly confined to the countryside henceforth develops in the urban area and occupies a preponderant place as a strategy of survival, insertion and food supplying for city-dwellers [8]. The market-gardening channel contributes to the durability of Parakou city. For that reason, it permits the best quality of life thanks to the created employment, the generated income and the social insertion. As result, it induces lasting socio-economic development thanks to the partial mastering of its waste thanks to the recycling of biodegradable waste [5]. Jola women farmers in the Casamance region of southern Senegal use their "traditional" knowledge and farming skills to shift crop repertoires and techniques so as to embark on gardening, thus innovating according to new needs and perceived opportunities. The argument is relevant to present-day concerns about regional food systems and the role of women in securing an income and providing extra food for the family [9]. Market gardening involves the intense production of high-value crops from just a few acres and gives farmers the potential to increase their income. Market gardening is also of interest to people considering agriculture as an alternative lifestyle [10]. Any growth in the domestic horticultural industry is likely to reduce poverty in different ways in rural and urban areas

[11]. Temple and Moustier (2004) identified three types of family farms in Yaoundé: those whose agricultural production is essentially self-consumed. They are poor farmers, often intramural, combining with other non-agricultural activities; those whose agricultural production is both self-consumed and sold, providing them with substantial income. Farmers are often pluriactive and mostly located in peri-urban areas; those whose production objective is essentially commercial. These are generally young people who only practice market gardening and employ wage labor [12]. Periurban farms are predominantly family-run and attract a young, low-skilled population that derives income either in total or in addition to other activities of household members [13]. The growth of female market gardening is linked to the need for households to diversify local sources of income since it was necessary to solve the structural crisis in systems of activities mainly based on annual cereal farming, Sorghum and rainfed rice especially) or biannual (managed rice) [14].

Market gardening in the rural municipality of Safo, in view of the information gathered, although important in the reduction of poverty, job creation and food security, remains within the capacities and expectations of the producers. Hence the need to better understand the market gardening practice and its contours in order to contribute to its harmonious development for an efficient contribution to the reduction of poverty and the creation of jobs in the municipality.

While the fairly extensive documentation on market gardening, deals with various themes, even poverty, but very little or almost deals with unemployment and the creation of jobs. Very little the documentation is found on market gardening and unemployment in rural areas, hence the need for this study to address gardening and unemployment in rural areas, especially in the rural municipality of Safo.

This article aims to evaluate the contribution of market gardening to the reduction of poverty and unemployment in rural areas by the jobs opportunities that it could offer.

This research is presented and discussed in five sections: the first section presents an overview of the current knowledge of market gardening practice in its wholeness. In the next section, the methodology is presented: it presents the selected survey methods, sampling, surveys, data collection and processing. The third section presents the study area. The fourth section talks about the significant results and discussions. The final section draws conclusions and makes suggestions.

2 METHODOLOGY

A research was carried out in two stages: a documentary research on the one hand, and a survey and field observation on the other.

The documentary research was carried out on the exploitation of the reports of various activities and documents of the national, regional authorities of the Koulikoro region, the municipality of Safo and the non-governmental organizations working in the market gardening sub-sector in the municipality.

A field observation has identified the market gardening farms and market gardeners that will be the subject of surveys.

Quantitative and qualitative methods are used for field surveys. Quantitative surveys were carried out among market gardeners in the localities chosen for the study. The aim was to try to understand the contours of market gardening among them. The questions dealt with: demographic characteristics, market gardening production, market gardening, occupation status of the harvested land, assets, difficulties and prospects for market gardening as a tool fighting against unemployment and poverty in the municipality. Qualitative surveys have been carried out through open interviews with people who are directly or indirectly involved in the management of the places studied. These included village chiefs and political (local elected), administrative (sub-prefect, technical service managers) leaders or non-governmental organizations. The aim is to understand their visions on market gardening, the policies put in place to better supervise market gardening production, the place of vegetable production in relation to other crops, the real impacts of this activity in the municipality, mechanisms for access to land ownership and problems related to the land issue.

The stratified simple random sampling method was used. Thus, we selected a sample of ninety (90) individuals, including 60 male market gardeners and 30 female gardeners, making up our survey units. These ninety (90) survey units are drawn from a population of four hundred and forty (440) units made up of all market gardeners from the 6 most accessible villages in the rural district of Safo. These 440 units, composed of 234 market gardeners and 206 market gardeners, were identified by a census that we carried out in six villages, including Dognoumana, Falayan, Tassan, Torodo, Safo and Zorokoro.

3 STUDY AREA

The rural commune of Safo, with 307 km² of area, was created by the law N° 96.059 of 04 November 1996 creating the new municipalities in the republic of Mali. It is part of the Kati prefecture in Koulikoro region. It lies between the urban commune of Kati (about 13km to the west) and the district of Bamako (20km to the south-east). It is bordered to the north by the rural municipality of Yekebébougou, to the south-west by that of Dialakorodji to the east and to the south-east by the rural municipality of Moribabougou and Sangarébougou. It is composed of 14 villages which are: Chodo, Dabani, Dognoumana, Donéguebougou, Falayan,

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TABLE 1: DISTRIBUTION OF POPULATION BY LEVEL OF STUDY AND BY SEX

Sex Study level	Men	Women
Illiterate	27 45%	17 56,66%
Literate	10 16,66%	7 23,34%
Primary level	19 31,66%	6 20%
Secondary level	3 5%	0 0%
Higher level	1 1,68%	0 0%
Total	60 100%	30 100%

Source: Personal Inquiry, 2013

TABLE 2: DISTRIBUTION OF POPULATION BY OCCUPATION

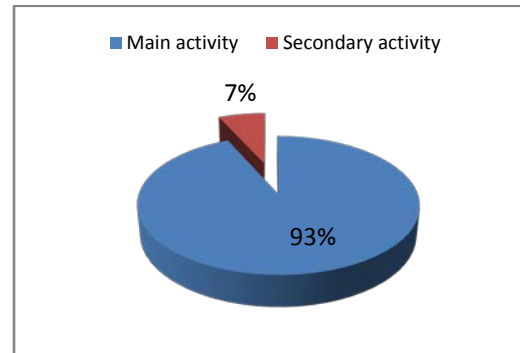
Profession	Frequency	Percentage
Peasant (market gardener)	86	95,55%
Trader	1	1,11%
Other	3	3,34%
Total	90	100%

Source: Personal Inquiry, 2013

4.2 The technical and economic characteristics of market gardening

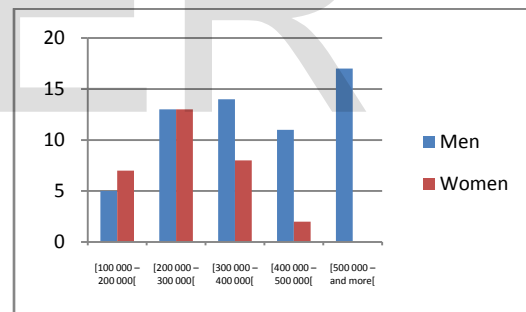
Market gardening is practiced in the municipality of Safo in any season, in simple cultivation or in association of cultures, actively by men and women. Using inadequate technical and material resources, it remains the main economic activity and the main source of income of the municipality (Fig 2). In the municipality 92.22% of the population practices the association of cultures against 7.78% of simple culture. Those who practice the association of crops generally have more or less space to cultivate various products on the same space. This allows them to sell at any time because the crops do not mature at the same time and each product has its period. The 7.78% practicing the simple cropping system generally use onions, potatoes and bananas, which are not usually associated with other crops. Almost all market gardening products are grown in the municipality. However, five products dominate and are very abundantly cultivated by more than half of the market

gardeners (Table 3). Market gardening is a very lucrative activity in the municipality. Annual incomes go from 200,000 up to more than 500,000 CFA. Women earn less than men in market gardening. This can be explained, on the one hand, by the fact that men have more land than women, both working on the same land belonging to man; and on the other hand women, who are more concerned with household duties, have less time than men to devote to market gardening. Some men would earn up to more than 1,500,000 per year. These men are only those who associate vegetables and tubers with bananas and oranges (Fig 3).



Source: Personal Inquiry, 2013

Fig 2: distribution of the population according to the size of the activity and by sex



Source: Personal Inquiry, 2013

Fig 3: Distribution of population by annual average income and by sex

TABLE 3: DISTRIBUTION OF POPULATION BY CROP MARKET

PRODUCE

Products	Frequency	Percentage
Salad	16	17,77%
Cucumber	65	72,22%
Tomatoes	51	56,66%
Cabbage	74	82,22%
Carrot	12	13,33%
Potato	15	14,44%
Papaya	37	41,11%
Eggplant	78	86,66%
Bananas	45	50%
Onions	24	26,66%
Okra	38	42,22%
chilli pepper	18	20%
Celery	22	24,44%
Onion leaves	63	70%

Source: Personal Inquiry, 2013

4.3 The assets and constraints of market gardening.

4.3.1 The assets

Market gardening, in the rural municipality of Safo, has many advantages favorable to its development. These human, physical assets extend to the whole municipality. A more or less quantitative and qualitative labor force has acquired know-how acquired over the years of experiments, but also of more efficient know-how introduced by non-governmental organizations supervising the gardeners of the techniques. New practices introduced by development partners, both in the production and conservation of market gardening products, and the use of mechanical means such as motorized pumps and sprays, constitute an undeniable technical asset of market gardening in the municipality.

The physical assets, important in the municipality are defined in relation to the access to the ground with the water. The practice of market gardening requires a sustainable water source that is sufficiently accessible. This is to satisfy the sustained irrigation required for commercial vegetable production[15]. Nearly all market gardeners have good soils (92.22%) and a large majority also has access to water for part of the year (86.67%). However the water problem arises during the warm period or the wells are almost dry (April-June).Irrigated farming in the dry season, market gardening also offers the possibility of freeing oneself from the constraints (climatic, limited space or saturation of agricultural calendar in the wet season) to

which the supplementary crops can be locally subjected . Such strengths have made it a preferred option at a time when the shortening of rice and cotton crops and other traditional remuneration (income from the exodus and destocking of livestock) forced farmers to diversify their local sources of Income to cope with the failure of large-scale rainfed cereal crops [16].

4.3.2 Constraints

Market gardening in the municipality of Safo is confronted with constraints of a physical, material, technical and economic nature. All market gardeners without exception have constraints of whatever nature they may be. Physical constraints are mainly related to access to water throughout the year and soil degradation. Technical and material problems are: access to agricultural inputs and materials, inadequate or lack of capacity building frameworks. The prosecutors claim that they have never been provided with supervision by the State and technical services, as evidenced by the absence of monitors and agricultural technicians in the municipality. Economic constraints are the lack of financial resources (lack of financial partners and line credit) for the purchase of inputs and materials, seeds because incomes are not enough to cover his needs and family expenses. Major constraints of peri-urban agriculture in Yaoundé are pests and diseases, the lack of producer credit and the inadequate extensions services [17]. The commercialization of productions remains another economic constraint. If the proximity to Bamako, the capital city is an asset, the routing of the products often poses problems due to lack of adequate means of transport and the defective state of the roads. The sale of the products is sometimes against the satisfaction of certain producers because it is imposed a price set by wholesalers of the capital because of the pre-financing of the production in the form of debt by the wholesaler.

4.4 The importance of market gardening in the municipality

4.4.1 Economic importance

Market gardening is of undeniable economic importance more than any other economic activity in the municipality. It contributes greatly to the economic empowerment of the populations. As the main activity, it remains the main source of income for the majority of the population in all seasons. Financial revenues allow the taking over or satisfaction of tangible and intangible needs such as the purchase of material goods and the financing of marriage, naming, funeral, ceremonies and others; Health care and schooling or education of children; repayment of loans. Figure 3 is indicative of the economic importance of market gardening in the municipality. Urban and peri-urban agriculture has become a significant source of income for many households in the Sudan-Sahelian and Sudano-

Guinean areas [18].

4.4.2 The importance of food

Traditional leafy vegetables are among the most diverse and multi-purpose African species, effectively contributing to food security and poverty reduction in Africa [19].

The importance of market gardening is not negligible in the municipality by its participation in self-sufficiency and food security. It goes into food complementation especially during the lean season (August-September) during the winter to fill the cereal deficit. Revenue from market gardening is also used to purchase cereals during the lean season. In addition to the consumption of vegetable products, it ensures the condiments of the women for their kitchens; as we know that women do not receive condiment prices from their husbands contrary to the women in the city.

4.4.3 Social importance

Market gardening is a major contributor to job creation and the reduction of poverty that is the subject of this study. Through this role of job creation, it contributes to socio-professional integration in the commune. Thus well supervised, work can be provided to hundreds of young people (figure 2). The commercialization of leafy vegetable and cassava production in peri-urban areas is another important economic activity among the poor [15].

Market gardeners claim that all young people in the municipality, dropping out school at the secondary level due to lack of housing and sufficient means to support the study expenses in Bamako, all return to market gardening. The parents affirm that they are not able to cover the daily travel costs of school children between Bamako and the villages. After leaving school, market gardening remains the only recourse for these young people and their parents for their professional insertion; hence its importance in the creation of jobs in the municipality.

Income from market gardening, which enables the needs of the population to be met and thus the improvement of their living conditions or their living environment, make it a major contributor to poverty reduction. As highlighted above (economic importance), these incomes ensure the schooling of children, health care, payment of taxes and others. Finally, it strengthens social cohesion within the market garden population through the professional solidarity it creates between market gardeners, grouped together within groups or cooperatives such as the cooperative called "Dunka fa", covering all the villages in the municipality.

These certainly important results would have been even more interesting if the study had been further extended to other practice-related parameters such as production and yield per unit area. This would give us a more precise idea of the productivity and profitability of farms. The study sample, although representative of the target population, could be increased in size given the size of the target population because market gardening is practiced by the

entire population. And that might have yielded more convincing results. A greater understanding of market gardening, in addition to this study, the aspect affecting the characterization of the farms gardeners would be favorable to perfect our study.

5 CONCLUSION AND SUGGESTIONS

Market gardening in the rural community of Safo is a great opportunity for job creation, poverty and unemployment reduction. It remains the main professional activity and the only main source of income, knowing well that the municipality has no trading crop. With successions of cropping cycles as a function of the seasons, it is an activity that occupies the majority of the population, and this during the whole year, hence its socio-professional and economic importance. Market gardening is a further illustration of the resilience capacities of African rural societies by addressing the monetary needs of families in the face of the random incomes of old trading crops [20]. However, the promotion of youth employment, poverty reduction, food security and self-sufficiency in the rural municipality of Safo through market gardening could be achieved through: facilitating access to finance and materials by subsidizing them; the creation of coaching and training structures; extension of new high-yielding seed varieties; the valorization of market gardening products through the introduction of a policy for the processing of market gardening products; sensitizing young people on the importance of market gardening; periodic training workshops for market gardeners. Lastly, the extension of the promotion or support to women's market gardening in all the villages in the municipality by the irrigated perimeters or agro ecological farms creating for women, as the cooperative "Dunka fa" has already been done it in two villages of the municipality, will further contribute to socioeconomic empowerment, to the reduction of poverty and to socio-professional integration within the women's community.

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