

# Agroecological Community Garden of Plural Space: Food and Nutritional Security, Social Inclusion, and Income Generation

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**Keywords—** Territorial Development,  
Social Inclusion, Family Income, Food  
and Nutrition Security.

**Abstract—** The agriculture is also practiced in the cities and surrounding areas being known as urban and periurban agriculture, which is presented as backyards or Garden Community. This paper aims to discuss the extension project actions for work and income generation for social and economic fragile communities - Agroecological Community Garden of plural space, approaching its relation with food security, social inclusion and income generation, being justified by the importance of publicizing initiatives that have a high value impact, as the project dialogues with social, economic and health issues. The approach used in this study was an experience report lived during and after the implementation of the Community Garden project, located in the Malhada da Areia neighborhood in Juazeiro, Bahia. The Community Garden encourages that the food produced should be consumed by their own families, where this production is diversified, derived from a healthy, organic, and environmentally friendly mode of production. The leftovers of production are commercialized as a form of income generation, contributing to the empowerment and social participation of these people. This Garden is a social project that serves as a reference to farmers familiarized with the organic sustainable urban agriculture model, ensuring food security of families whose work and income come only from this activity, reducing malnutrition and valuing health and life.

## I. INTRODUCTION

Food production has always been associated to rural areas, with urban center only playing the role of major consumers of agricultural products. (Alves et al., 2019). However, lately, the emergence of urban spaces destined to agriculture is a real initiative in the largest and most

important cities around the world. It is noticed that, gradually, the urban spaces are being used for food, medicinal plants, ornamental flowers and other varieties (Serafim e Dias, 2013), among them the non-conventional food plants (PANC) providing opportunities for inclusive and sustainable spaces.

The practice of cultivating food in cities and the surrounding areas is called urban and periurban agriculture (AUP). Nevertheless, the sharp unfolding of agrarian-urban ideology is not limited only to the implementation of urban gardens, but also to a whole theme of discussions about the economy and social behavior. Among them social solidarity and health, assisting the recovery of the urban environment, stimulating participatory governance, territorial planning and strengthening food and nutritional security. Though, it is possible to conquer recognition as an important activity that produces food in natura and to create new job opportunities, recycling urban waste and promoting the emergence of green belts. (Azevedo et al., 2020). This idea is based on agroecology which has as its basic principle the rational use of natural resources, concerned not only with the production chain and income, but also with the connection between human and environment, seeking sustainable prototypes for the field (Gliessman, 2001; Altieri, 2002; Caporal et al., 2009). According to Petersen (2009), who has a scientific vision that grants a conceptual and methodological guideline, which serve as a guide for processes aimed at “refunding” agriculture in nature through the idealization of structural and functional analogies between natural ecosystems and agroecosystems.

Costa et al. (2015), also states that the urban and periurban gardens stimulate dietary patterns that help improve food security, nutrition and health in communities enabling different perspectives of research, including in the health area, especially with public policies that encourage the cultivation of these gardens, such as: National Health Promotion Policy (PNPS), National Policy of Medicinal Plants, National Policy of integrative and complementary practices (PNPIC) e National Policy of Health Education (PNEPS).

Serafim e Dias (2013) state that:

Such experiences in the implementation of agricultural urban spaces are supported by elements of social technology, such as the empowerment of users and garden workers, the use of traditional techniques and adaptations of methods and instruments to the urban reality, as well as the critical and transformative perspective on the established reality, which in this case are not the cities and its unsustainable growth patterns. (Serafim & Dias, 2013, p.135)

Azevedo et al., (2020) share the same opinion saying that:

Recognizing the relevance and importance of this phenomenon on an international scale and aiming, above all, to approach it within the scope

of some policies and programs, intending to address issues related to food security and the income of socially and environmentally vulnerable families and groups, the ONU has recently recognized the AUP as a multifunctional and diversified activity, including the production and/or processing of agricultural and livestock products in intra-urban and peri-urban areas for self-consumption and/or marketing purposes. It is about enjoying the resources and local supplies to respect the local knowledge, promote gender equality through the use and coexistence of appropriated technologies (such as social technologies), based on participative processes, collective and democratic for the best life quality of urban and periurban population. (Azevedo et al., 2020, p.12)

The AUP is a strategy that promotes a food self-sufficiency destined to self-consumption, exchanges, donations, or commercialization. The domestic and community gardens are examples of this practice that has been intensified besides the productive backyards (Santos e Machado, 2020).

The productive backyard exists since a very long time and they are not new, but they correspond to a variety of forest species, agricultural as fruit trees (acerola, guava, banana, papaya, lemon, Orange, mango, custard apple), medicinal herbs such as (mint, mastruz, lemongrass, arruda, rosemary, etc.), vegetables (onion, cilantro, peppers, tomato, lettuce, chicory, arugula, chives, parsley, etc.) and ornamental plants, associated to a small breeding of domestic animals, fundamental to food security and the development of sustainable family farming. It is also important to emphasize their ecological function and to conserve the diversity of plants in their composition, ensuring the genetic variability of many species. These backyards are traditional agricultural systems which the purpose is subsistence, a fact that contributes above all, to a healthy diet and to the supply of various products and services to local businesses improving Family income.

Just like the backyards, the Community gardens have a huge importance to Society, because families who live on the urban areas are able to consume the food they cultivate (Pereira e Arce, 2016), considering that these producers are, in most cases, financially needy people.

This paper aims to discuss the actions of the extension Project of income and work generation for socially and economically fragile communities – Agroecological Community Garden of the Plural Space, approaching its relationship with Food Security, social inclusion and income generation.

This is justified by the importance of publicizing initiatives that have a high value impact, because the project dialogues with social, economic and health issues, providing improvements in the living conditions of those who make the vegetable garden their livelihood, as well as improvements in the context of food and nutritional security for those who consume the food grown there.

This is an extension project developed with support of the Universidade Federal do Vale do São Francisco.

## II. MATERIALS AND METHODS

The place of study was the Agroecological Community Garden of Plural Space. This is an experience report lived during and after the implementation of the Project to generate work and income for socially and economically fragile communities - Agroecological Community Garden of Plural Space. Of the Universidade Federal do Vale do São Francisco – UNIVASF, located on the Malhada da Areia neighborhood, in Juazeiro, Bahia.

## III. RESULTS AND DISCUSSION

The agroecological Community Garden of Plural Space, belongs to the Universidade Federal do Vale do São Francisco (UNIVASF), located on Juazeiro city – Bahia, on Malhada da Areia neighborhood, covering 8.700 m<sup>2</sup> distributed in 31 lots with individual areas of 150 m<sup>2</sup>.

First, the Garden had the participation of 40 farmers and nowadays there are 20 families. All of them are part of the Association of Organic Producers of the São Francisco Valley (APROVASF) and they live in a condominium located next to the Garden, what contributes to the reduction of expenses with regard to the displacement of their homes to the vegetable garden to carry out their activities.

At the beginning of its implementation (in April 2013) the families were benefited with Ecological practices course that was held in partnership with the Universidade Estadual da Bahia (UNEB), campus Juazeiro, in addition to receive training on agroecological production over the years.

At this course several subjects were taught, such as: environment, the use of alternative sources of organic and natural mineral fertilizers, ecological management of the water and soil, water resources, the use of simplified irrigation system, stonemeal in agroecological agriculture, practices and use of green manure, formulation of natural pesticides, production of liquid biofertilizer, fundamentals agroecology and practical application and obtaining seedlings for the production of vegetables.

### - Relationship with Food and Nutritional Security.

The concept of food security was originated in the context of the needs caused by the second world war and was strengthened in the end of the 20th century, including discussions about the economic and physical access to food. It approaches the nutritional aspects, the quality of the food, as well as the cultural aspects related to diet (Aliaga et al., 2020).

Currently, Food and Nutritional Security is defined (SAN) as,

The realization of everyone's the right of the access to regular and permanent quality food, in sufficient quantity, without compromising access to other essential needs, based on healthy dietary practices, respecting cultural diversity and being environmentally, culturally, economically, and socially sustainable. (Lei nº 11.346, 2006, p.1).

This way, according to SAN's definition, it is not enough to have access to food, but this access must be in sufficient quantities to promote the nutritional contribution for each person.

One of the purposes of the garden's production is for the food to be consumed by the families themselves. This helps to improve the nutritional content of the meals they eat.

Another important observation is that when we talk about food and nutritional security and healthy diet, we also talk about the relevance of the access to food diversification.

At the mentioned Garden it is grown a great variety of organic foods, ranging from leafy vegetables (parsley, cilantro, chives, lettuce, arugula, spinach, kale), fruits (papaya, watermelon, melon), legumes (green beans), tuberous roots (beetroot, carrot), fruits (peppers, okra, tomato, cherry tomato), among others, ensuring that various types of food and nutrients reach the table of the beneficiaries.

Regarding the quality of the food, it has to be from a healthy mode of production that respects the environment, culture, the economy and socially sustainable, requirements also followed in the production standards of the mentioned garden.

Since its implementation, organic management practices are adopted, without the utilization of any agrochemicals. The methods adopted as fertilizers for the soil are: Application of manure and plant residues; crop rotation system; introduction of green fertilization, as a cocktail of legume species, grasses and compost; use of dead cover that may be grass and palm straw or residues from previous crops.

The seedlings are prepared with seeds. Part of them are acquired in trading houses certified as organic and others are produced in the vegetable garden. If any pest appears, alternatives solutions prepared with diluted neutral detergent, cassava peel, garlic, among others are applied. Always using techniques that are not harmful to people or environment.

All the species that constitute the Garden are regional foods, thus ensuring respect and encouragement for the consumption of local foods that are part of our food culture.

Another aspect of food and nutrition security concerns to the quality of the water used in the community gardens.

Regarding the available water for irrigation of the plants, it is stored in covered reservoirs, coming from the same pipeline that supplies the Plural Space and the unit receives periodic visits from the sanitary inspection of health agents.

The garbage is collected selectively and collected by the city's collection, contributing to the preservation of the environment.

Thus, it is noticed the size of the contribution that this Project has for the improvement of the food and nutritional security of the people who are involved, in addition the preservation of the environment.

#### **- Social inclusion and income generation.**

A paper published by Tedde et al., (2019) state that,

Another important aspect related to the implementation of the communitarian Garden is the promotion of the communities' empowerment, which aims the creation of solidarity and cooperation's bonds between individuals, potentializing social and productive inclusion strategies. (Tedde et al., 2019, p. 110).

The vegetable Garden, object of this study, contributes to the empowerment of those who are involved, both male and female. However, among the participants, most of them are female and this insertion in an activity promotes education and knowledge. There it is talked about entrepreneurship and it brings financial profit. It is an opportunity that women find to break social barriers, acquire a profession, increase self-esteem, and become empowered.

Some activities are developed in groups, providing opportunities for the strengthening of family and community bonds, such as: seed production, manure acquisition and preparation of organic compounds.

Another situation that benefited the relationships was the method used during the implementation of the

vegetable garden. During this period the transmission of knowledge occurred between each people involved. It still happens and the individuals build and rebuild their knowledge through educational actions, opening new doors for the dialogue about popular, theoretical, and technical/scientific knowledge. This makes the interaction between all those who are involved in the Project (technicians, advisors, producers, co-ordinators, and other participants).

This proposal of methodology values the knowledge of participants, raises dialogue and solidarity as ethical values derived from their lives.

Community Garden of plural space also encourages producers to sell the leftover food, generating income to improve their quality of life.

At the beginning, the production was sold by the producers in the garden. In 2014 an Organic Market was created, and it worked in front of the UNIVASF rectory, at the Centro campus, in Petrolina – Pernambuco, as well as at the UNIVASF campus Juazeiro - Bahia, in front of the collegiate block. The street market used to work every Friday, from 8 am to 11 am, but during the COVID 19 pandemic, the activities were suspended, and it will return only when the health authorities release it. For now, the sale happens in the vegetable Garden and deliveries to trader of the street Market and to the producer Market in Juazeiro.

#### **IV. CONCLUSION**

The Agroecological Community Garden of Plural Space is an active social program, serving as a reference for Family farmers, because it practices a sustainable urban agriculture based on organic production dynamics that do not harm the environment. Above all, it ensures the food security for families whose work and income only come from this activity, reducing malnutrition and valuing health and life.

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