

METHODOLOGY FOR SUSTAINABLE COMMUNITY ACTIONS – PRACTICES OF INTEGRATION OF THE FIVE HELIX MODEL IN A BRAZILIAN COMMUNITY GARDEN

METODOLOGIA PARA AÇÕES COMUNITÁRIAS SUSTENTÁVEIS – PRÁTICAS DE INTEGRAÇÃO DO MODELO DAS CINCO HÉLICES EM UMA HORTA COMUNITÁRIA BRASILEIRA

METODOLOGÍA PARA ACCIONES COMUNITARIAS SOSTENIBLES – PRÁCTICAS DE INTEGRACIÓN DEL MODELO DE LAS CINCO HÉLICES EN UN HUERTO COMUNITARIO BRASILEÑO

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ABSTRACT

This article presents the development of a methodology applicable to community actions, that was developed based on the foundations of Participatory Action Research and the values of Systemic Design, Agroecology, Food Sovereignty and Solidarity Economy, which lead to environmentally, socially and economically sustainable initiatives. Its goal is to synthesize good practices experienced in seven years of activities with low-income communities in a methodological framework that allows the inclusion of integral sustainability values in this context, contributing to their quality of life, social cohesion and protagonism. We demonstrate, through the narrative of our working experience in one of the communities, the importance of the integrated work of the elements of the five-fold helix (society, government, industry, academia and environment). We analyze the path, indicating the progress already achieved and the challenges that still arise, based on what we can foresee as next steps. We conclude by inviting other groups to use the proposed methodology and to evolve together towards the dissemination of fully sustainable actions.

KEYWORDS

Community Garden; Integral Sustainability; Systemic Design; Participatory-research action; Five Helix Model.

RESUMO

Este artigo apresenta o desenvolvimento de uma metodologia aplicável a ações comunitárias, desenvolvida a partir de fundamentos da pesquisa-ação participativa e dos valores do Design Sistêmico, Agroecologia, Soberania Alimentar e Economia Solidária, que conduzem a iniciativas ambiental, social e economicamente sustentáveis. Seu objetivo é sintetizar boas práticas vivenciadas em sete anos de atividades com comunidades de baixa renda em um framework metodológico que permita a inclusão de valores integrais de sustentabilidade neste contexto, contribuindo para a sua qualidade de vida, coesão social e protagonismo. Demonstramos, por meio da narrativa da nossa experiência de trabalho em uma das comunidades, a importância do trabalho integrado dos elementos da hélice quádrupla (sociedade, governo, indústria, academia e meio-ambiente). Analisamos o percurso indicando as evoluções já alcançadas e os desafios que ainda se apresentam, a partir



do que conseguimos visualizar como próximos passos. Concluimos convidando outros grupos a utilizarem a metodologia proposta e a evoluir conjuntamente para a disseminação de atuações integralmente sustentáveis.

PALAVRAS-CHAVE

Hortas comunitárias; Sustentabilidade integral; Design Sistêmico; Pesquisa-ação participativa; Modelo da Quíntupla Hélice.

RESUMEN

Este artículo presenta el desarrollo de una metodología aplicable a acciones comunitarias, desarrollada a partir de los fundamentos de la investigación-acción participativa y los valores del Diseño Sistémico, Agroecología, Soberanía Alimentaria y Economía Solidaria, que conducen a iniciativas ambiental, social y económicamente sostenibles. Su objetivo es sintetizar buenas prácticas experimentadas en siete años de actividades con comunidades de bajos ingresos en un marco metodológico que permita la inclusión de valores integrales de sostenibilidad en este contexto, contribuyendo a su calidad de vida, cohesión social y protagonismo. Demostramos, a través de la narrativa de nuestra experiencia de trabajo en una de las comunidades, la importancia del trabajo integrado de los elementos de la hélice quíntuple (sociedad, gobierno, industria, academia y medio ambiente). Analizamos el recorrido indicando las evoluciones ya alcanzadas y los desafíos que aún se presentan, a partir de lo cual logramos visualizar los próximos pasos. Concluimos invitando a otros grupos a utilizar la metodología propuesta y a evolucionar conjuntamente hacia la difusión de actuaciones completamente sostenibles.

PALABRAS CLAVE

Huertos comunitarios; Sostenibilidad integral; Diseño Sistémico; Investigación-acción participativa; Modelo de la Hélice Quíntuple.

1. INTRODUCTION

This article presents an ongoing research-intervention project started at the beginning of 2017 in a low-income community, the Santa Lúcia Agglomerate, in Belo Horizonte, State of Minas Gerais, Brazil. Its goals are to contribute to the resident's quality of life, including integral sustainability values in this context, by means of the formalization of their collective identity and improvement of their protagonism. In order to achieve these purposes, the Community Gardening Program (CGP) is being developed fostering dialog and collective learning, while building the Esperança (Hope) Community Garden, as well as other similar initiatives in Belo Horizonte. In doing so, another important desired result is the improvement of their health conditions through good nutrition and food security and sovereignty.

In this territory, knowledge regarding urban agriculture practices involve a very relevant heritage of rural experiences. Cultivating, then, is part of their culture. Nowadays, there are also a number of online courses and a diversity of related media available as sources that disseminate this type of information (1) (p. 9). Therefore, it has been identified by the group itself, with the facilitation of our academic team, that the creation of a community garden would be a suitable approach for the existing problem that was being posed: the need for a collective action to transform a vacant area in the community, source of many problems, into a productive one that could improve their welfare in many aspects.

In order to achieve this purpose, some methodologies and tools have been combined creating a methodology for sustainable community actions. The Systemic Design methodology is used as a reference for sustainable principles, related to the optimization of resources (considering circularity and other strategies), valorization of local culture and resources, respect to all living forms, inclusion, accessibility, recognition of the importance of positive win-win relationships and autonomy that, in the agricultural context, coincides with the values of agroecology (2–4). The conduction of the project was structured as a participatory research-action, involving conversation meetings, workshops and mutirões (meetings where inhabitants work together for achieving a goal), supporting the local group in its initiatives around its community garden such as the improvement and preparation of the area, planting, harvesting and distribution of their production, aiming at increasing the local quality of life.

A network involving the propelling elements of the five helix model (society/ community; government/ public administration; industry/ local businesses; academy/ universities; the environment) (5) was then formed and maintained in dialog to take forward and develop the initiative, as described next.

2. THEORETICAL FOUNDATIONS

As theoretical foundations the project is based on "Integral Sustainability", "Systemic approaches" and "Agroecology, Food Sovereignty and Solidarity Economy".

2.1 Integral Sustainability

Since the 1970s, when it was published the book "The Limits to Growth" (6) sustainability has been increasingly recognized as an essential value to our societies. At this moment, the focus was on the environment calling for the "attention on depletion of nonrenewable resources and resulting increases in commodity prices" (7) (p. 576). In 1972, in the Stockholm Conference the first assessment of the global human impact on the environment took place, and environmental issues were placed as a priority of international concern involving both industrialized and developing countries. In 1992, The Earth Summit (Rio 92) represented an even more significant moment, since it was acknowledged then the need of a joint effort of all countries in building, improving and reconciling the three pillars of the sustainable development environmental, economic and social emphasizing above all the respect among human beings and between them and the environment. From that moment on, the world has been creating periodic meetings to discuss this theme. Moreover, the political debate, since the Millennium Summit (2000) and the Johannesburg World Summit (2002) shifted emphasis to poverty alleviation (7).

Nowadays, many societies are considering in their everyday life the Sustainable Development Goals (SDG), also known as the Global Goals, launched by the UN in 2015, throughout the proposal of Agenda 2030, with 17 goals that encompass those three pillars (8).

Therefore, the concept of "development" is being put together with "sustainability" and is acquiring different meanings according to the social-economic contexts of each period. In fact, it has constantly been criticized mainly due to the overvaluation given to economic

development, letting aside fundamental necessities of the society, in disagreement with the purpose of a broader evolution. The meaning of development is being thus reevaluated, including other instances of power, incorporating in the contemporary world “the debate on the legitimate purposes of the appropriation of the material world” (9) (p.24). Many authors (10–13) consider that the development is based not only on the economic dimension, but must also embody social justice, equity, quality of life, including the receptivity to the citizen participation at public life, that is, at the democratization of the decision process.

From this paradigm, the term “integral sustainability” is proposed here to call attention to the need of a holistic approach, involving economic, environmental and social aspects in order to achieve the balance required for humanity's well-being.

In this complex context, the Esperança Community Garden Project (ECGP) is being developed with the poorest populations who have little participation in public life, usually having no prominence around the decisions concerning their social realities regarding housing, food, education and health. The guideline of the Project is to observe and act on different aspects of this reality. Social, environmental, economic and cultural aspects are approached simultaneously, by stimulating collaboration, identifying local resources and their economic value and taking care of their living environment which includes the vegetable garden itself.

2.2 Systemic Approaches

For a long time, our society is failing at fixing problems that threaten human quality of life such as inequality, hunger, diseases, crimes, lack of education and housing. Moreover, efforts that focus only on one aspect of reality and do not try to balance others are far from being effective. In order to achieve integral sustainability, it should be considered all possible elements that interfere in the context that is being developed or studied, embracing complexity that is inherent to these problems which have many interrelated variables and uncertainties.

Systemic thinking is a way of reasoning that considers the complexity of the whole. It is a cognitive process that leads to the capacity of perceiving, modeling and evaluating the consequences of actions in an expanded way in terms of time and space (14).

The Systemic Design methodology puts into relation businesses from different areas, in order to balance the system and try to reach zero waste using five principles: output/input, relationships, autopoiesis, act locally, life at the center of the project (2). It is a methodology that makes qualitative and quantitative analysis of the current process with its outputs and inputs; identifies its problems; and presents a “Systemic Model” proposing changes that optimize resources (matter and energy), improve equitable relations, foster networks, value local culture and give priority to quality of life over product generation. “Integral Endeavors” refers to productive activities that gather partners, collaborators, customers, suppliers in a network for mutual benefit, having the Systemic Design and integral sustainability as the basis of their processes and strategies (4,15,16).

The Esperança Community Garden Project uses as guidelines the Systemic Design principles and aims at fostering the development of Integral Endeavours within the community for the quality of life of all individuals and productive activities involved. The following sections will present examples of this implementation. It is important to stress that the implementation of the garden also observes the recommendations and principles of agroecology and solidarity economy, searching to contribute to food sovereignty, as explained next.

2.3 Agroecology, Food Sovereignty and Solidarity Economy

Agroecology values correspond to the Systemic Design ones, applied specifically to the area of agriculture. It is an agricultural practice adapted to the productive needs of the land, comprising multiple solutions of ecological farming in harmony with the territorial, cultural and social-economic conditions of each agrosystem. Its principles consider the local features, in order to preserve biodiversity, natural resources and ways of life, building an ethos of integral sustainability (17). It is considered a science, a practice and a movement. It is a science, as it uses principles from ecology, as well as transdisciplinary and action-oriented research, applied to agricultural and food systems. It is a practice, as it combines the local culture with its traditional and resilient ancestral knowledge, especially in smallholder farming systems, to optimize resources and produce healthy food with no pesticides. It supplies food for the families involved in the production and for the local market, shortening or even eliminating

the middlemen. It is also a movement as it acts against the imbalance of food availability, empowering the stakeholders in keeping food sovereignty. It defends the right of the countries to their autonomy to deal with their politics and strategies of production, distribution and consumption of food, protecting the small and medium agriculture (17–20).

Aligned with agroecology, in the 1970s, gained prominence in Brazil the social and solidarity economy, which have opposite patterns to hegemonic capitalism (21–23). Their main principles are: the option for cooperation and solidarity; the social appreciation of the worker's production; the prioritization of economic production and technology efforts for the purpose of fully satisfying everyone's needs; the perception of the relevance of female participation for the implementation of solidarity practices; and the preservation of the environment (24).

3. METHODS

The Community Gardening Program (CGP) is composed by a series of projects and initiatives that give support to the constitution and maintenance of community gardens developed to foster dialogue and learning related to nutrition and food security, disseminating integral sustainability values and systemic thinking. It is the result of the confluence of needs, interests and resources materialized as urban gardens.

The methodology of the CGP described in this article involves continuous bibliographic studies and the application of the Systemic Design and Solidarity Economy principles, practicing agroecology through the participatory action-research (25), which allows the creation of a continuously reflexive and pedagogical process within the community.

The research-action methodology was chosen because its values lead to the direction of our objectives. Since its origins, it rescued values considered indispensable for the achievement of sustainable development, namely: the construction of democratic relations; the deliberative participation of the subjects; the recognition of individual, cultural and ethnic rights of minorities; tolerance for differing opinions; and the consideration that subjects change more easily when driven by group decisions (26). Besides, it intends to introduce to the community a process committed to the “cognitive construction of experience”, based on the “collective critical reflection” for the “emancipation of the subjects from the conditions that

the collective considers oppressive” (26) (p.485).

This framework assumes the important feature of unpredictability, as it values the power of the community where the participants are recognized as a “frailty receiver with potentialities” and each researcher assumes the ethical posture of putting himself/ herself as an “enhancer subject with frailties” (27) (p.491).

The development of the CGP was an organic process grounded in the values and principles of the group. It all began with two projects that ran initially in parallel. The first one is the LEIA (*Laboratório Ecosistêmico Interdisciplinar de Aprendizagem – Ecosystemic Interdisciplinary Laboratory of Learning*) that had an experimental garden at UNA University rooftop, where workshops on sustainable relations used to take place. This initiative was closely related to the university's Gastronomy and Architecture and Urbanism graduation courses and also to the master degree in Social Management, Education and Local Development. Its approach involves a participatory, collaborative and collective process, prioritizing social management, associated with solidarity economy, in addition to urban environmental and socioeconomic sustainability (28) (p.136). The second one is the Extension (Outreach) Courses on Urban Gardens from the Design School of the State University of Minas Gerais (ED-UEMG), used as a didactic resource and a means to communicate and practice the values of Systemic Design, as a methodological basis for design projects.

The initiative of the first project started within the community itself. After a request from a member of the Santa Lúcia Community to one of the LEIA's coordinators, to help them finding a solution to a vacant lot located in front of her home, that presented as a threat for their security and health (an area of geological risk, that was used as garbage dump and therefore attracted pests and illegal activities), the group structured an outreach project to work with the community, the first one from the Community Gardens Program.

This outreach project was then materialized (on mid-2016) within the principles of Solidarity Economy and Systemic Design, involving the initial university groups (UNA and ED-UEMG) and also incorporating an invited researcher from another university (UFMG), formalizing the multidisciplinary of the project economy and social sciences, social psychology, gastronomy, architecture and urbanism, design.

At the very beginning of the project, the first actions involved the development of a research to understand the local resources and demands to collectively define

the use of that piece of land. The result showed that the community would like to use that space to build a fruit and vegetable garden. This decision had the influence of the origin of many of them, who came from rural areas, where they used to grow plants, their own food. Therefore, this inheritance constituted an important asset for the initiative, as the knowledge embedded in their culture, memories, traditions and identities.

From these initial participatory steps, the actions for the implementation of the community garden are always intended to involve dialogue, cooperation, exchanges and the attraction of more and more participants to the network that would transform relations and the environment.

4. THE NETWORK

The initial actors were some members of the **community**, especially the ones living near the area of intervention and the **academic group**, composed by three university teams (UNA, UFMG and ED-UJEMG). Before any actual intervention the representatives from the municipality responsible for the area, URBEL/ PBH (*Companhia Urbanizadora e de Habitação de Belo Horizonte*) were called to dialogue and since then are taking part of the network (29). One year later we invited SUSAN/ PBH (*Subsecretaria de Segurança Alimentar e Nutricional/ Secretaria Municipal de Assistência Social Segurança Alimentar e Cidadania*) to support the development of the vegetable garden (30), also representing the **local administration**.

Another important member of the network is the nursery school located in front of the garden (*Creche Educacional Nascer da Esperança*), a **local organization** of the community itself. The name of the community garden was chosen by means of an activity that the teachers developed with the children and the selected one was Esperança (Hope), establishing the name Esperança Community Garden (ECG). Besides, they have an important role in the community garden of hosting meetings of the local group and mobilizing other members of the community thanks to their close relations with the children's parents. Two special moments of their participation were the initial mutirão in 2017, a joint effort to clean the space and plant the first seedlings; and the first meeting of Belo Horizonte's Community Gardens and Agroecology, in 2019, that gathered gardeners from many similar initiatives to exchange experiences, including participants of other initiatives of the CGP (31).

A representative of the **industry**, a local real estate

construction company was called to give support to the 2017's *mutirão*, which participated donating three "ipês" seedlings and with its employees participating in the action, as an action consistent with its policy of **environmental** responsibility.

5. MAIN ACTIONS

The Esperança Community Garden is composed by two contiguous pieces of land, that we call "Top Garden" and "Bottom Garden" (Figure 1). The project's first action was a mutirão, during which the "Bottom Garden" area was cleaned and some seedlings that were brought by the participants were planted. After that, the main routine involves the cycle of continuous cleaning and preparation of the soil and space increasing the area for planting (both in the bottom and in the top garden), maintenance of the plants (watering, combating harmful elements), harvesting, planting new seedlings. Although they always bring seedlings from their own personal circle of relationships, the new production relies mainly on the donations from SUSAN (through a project that promotes the implementation and maintenance of production units in Belo Horizonte, including the donation of supplies), especially of seedlings and manure (32). URBEL provides some equipment, basic infrastructure and also some technical engineering assistance.

The academic group gives continuous support to the local community. Having a WhatsApp group as an open communication channel, it dialogues and provides support to the local group for the demands that arise, be them related to relationship, supplies or infrastructure issues. For instance, it helps to mediate conflicts that arise in their daily routine and takes the local demands to other groups involved, such as URBEL and SUSAN. It also organizes periodic local meetings, always practicing the participatory research-action principles: giving protagonism to their voices and ideas, fostering social cohesion, respecting their previous knowledge of planting, using integral sustainability values and practices.

It is also important to highlight two impacting milestones of the Project. The first one was the COVID19 pandemic, within three aspects: a) the ECG was maintained and bravely resisted to this complex period; b) our relationship, even physically apart for a long time, was strong enough to resist and strengthen; an WhatsApp group was created (despite the initial difficulty of some members with this technology) and became this



Figure 1: a) Condition of the area in 2016 (top left); b) areal view of the two parts that compose the Esperança Community Garden (Bottom Garden and Top Garden with nowadays usable area delimited in green) (bottom left); c) the workable top Garden in 2024 (top right); d) the bottom Garden in 2024 (bottom right).

constant means of contact so useful for our nowadays activities, giving voice to each and every member; c) our connection with the community allowed us to contribute with the dissemination of information about the measures of protection against the virus regarding the use of fabric masks, by the distribution of an instructional booklet, a coloring leaflet and a jigsaw puzzle for the schools of the community (33). The second milestone were the meetings that gathered gardeners from all over Belo Horizonte in the Community Gardens and Agroecology events, where the groups, many of them fostered by SUSAN, could meet to communicate their achievements, discuss and find solutions to common problems.

The academic group also intermediates the exchange of knowledge bringing to the community technical workshops, such as “how to identify contour lines to build the planting beds”, “how to use materials available to help irrigation”, “how to produce fertilizer using the organic waste from their household”. Regarding the acquisition of knowledge from the academy, students from a number of courses are being received in the Esperança Community Garden to make research for their academic works and are encouraged to bring back results (for instance, different composting methods).

Nowadays, the regular participants are about six families, who live very close to the community garden,

together with teachers, employees and children from the nursery school. At this moment, a younger generation is approaching, after the contact with the academic group in a local event for women empowerment, promoted by the Belo Horizonte local administration. The Esperança Community Garden has then leaders that are resilient and actively involved from the very beginning, and count also on the participation of other members in cycles of expansion and contraction.

In this last one year and a half, the group is trying to build a containment wall on the steepest parts of the “Top Garden” (that currently is not effectively being used) to reduce the danger of landslide that would affect neighboring houses, and would also increase the usable area of the garden. The initial plan was to build it by using the social technology of tire walls, both considering its land containment function and also as a strategy to give a proper destination (upcycling) to wasted tires. Nevertheless, its building is very strainful and physically demanding, making it a challenging task, since the group is mainly composed by older women. Besides, during a recent visit with representatives of SUSAN they have demobilized this plan, by considering more adequate that the city hall’s construction department would build a concrete containment wall, a solution whose viability is still undefined.

The participation of the academy based on the Systemic Design methodology is being of support, exchange, sharing of sustainable values and principles, but up to now was not being used as a planning tool to formally prepare a specific project to be executed. Nevertheless, considering the difficulty in tackling the earth containment problem, we have decided to develop a conceptual plan to help inspire viable, economic terrain containment solutions and optimization of the use of the space (Figure 2).

as well as being a space to clean and prepare production before leaving the garden premises, cleaning and storing tools and supplies in general. The roof dimensions were maximized in order to have a bigger area to collect rainwater that will be stored to water the plants.



Figure 2: Planning for intervention in the Top Garden - a) plan (left); b) section along the terrain (top right); c) façade and plan of the social area (middle right); d) perspective views of the Garden and detail of the stairs and flowerbeds (bottom right). Author: Rosângela Mendonça/ ArquiCAD.

Respecting the local features, the typology conceived for the “Top Garden” was the terracing. The flowerbeds that allow access by both sides, have the width of one meter since, considering ergonomic principles, the average person arm span is about 50 cm. Many of them have, from one side, height of 80 cm in order to allow working on the soil in upright position, without bending, that is a more comfortable position for everyone, and specially for the elderly. In the middle, it was conceived a plateau with a structure with shade cover, making a greenhouse to grow seedlings or even to build an aquaponic structure (where fish farming can be interrelated to growing hydroponic plants, in a way that the fish droppings supply nutrients for plants and they, in turn purify the water). Also, a small social area was conceived where daily meetings could take place

6. RESULTS

All this initiative, that begun with academic internal projects and found opportunity to be extended to the society from one voluntary personal point of contact, have promoted significant changes for those involved regarding aspects of integral sustainability – changes in the environment, in relationships, and even in economic aspects, as resources are being used to produce quality food at a low cost, contributing to the mental and psychological health of the ones involved.

Along the process, the methodology itself has been consolidated, having their principles validated, creating a new framework (Figure 3). Consistent with the participatory research-action methodology, the actions are happening in

participatory cycles of four moments (collective planning, implementation, monitoring, evaluation of the results and sharing of lessons learned) (25,26) including elements of the Systemic Design process (having its five principles as a guide for good practices), that are being registered through images, recordings, notes and reports.

7. DISCUSSION

Urban community gardens are becoming an alternative to the large market chains, to give access to quality food, especially to the low-income population. Participants in the integrated system see also community gardens as a space of nature and peace within the chaotic urban center.

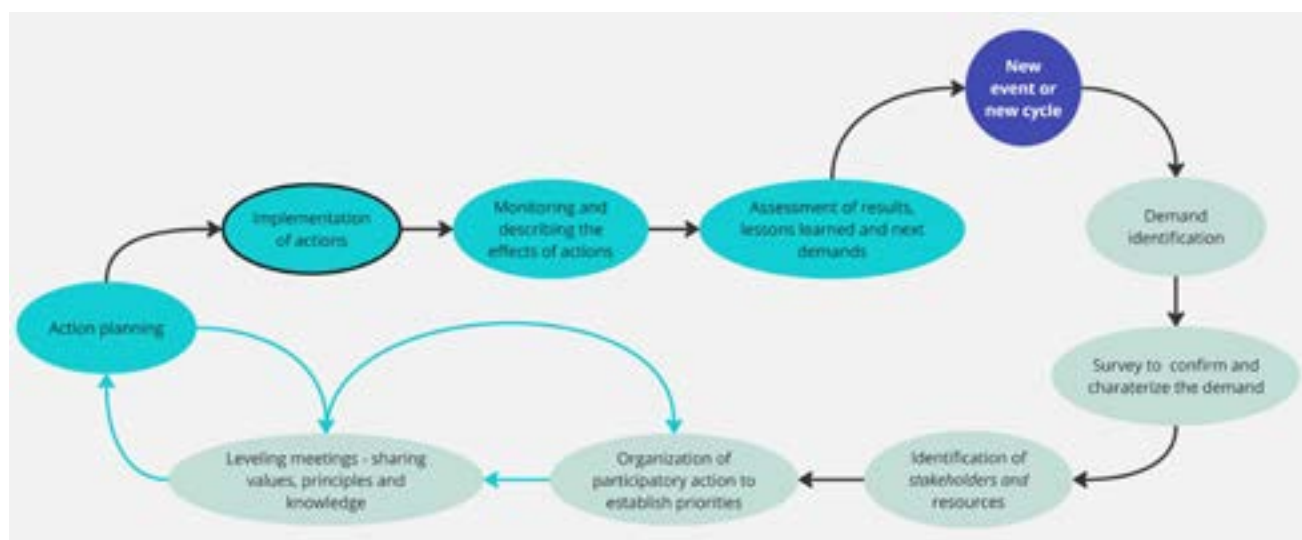


Figure 3: Framework of the methodology for sustainable community actions. Source: Own authors.

Up to now, questionnaires, interviews, observant participation, meetings, focus groups, collective actions (mutirões), welcome coffees and workshops have been developed. These initiatives are being used to get to know each person involved and encourage them to participate, to try and understand their wishes and needs, individually and as a community, to deal with relationship issues that eventually emerge, to share knowledge, to integrate and harmonize the group.

In relation to the environment, the area was effectively cleaned, some terrain level adjustments have been made and planting beds created and, more than just tackling the problems of a vacant lot in the community, a green productive spot was created.

The action-research and Systemic Design principles contribute to reinforce that exchanges between academic institutions, local authorities and community should evolve naturally, without a notion of superiority, as long as everyone participates effectively in the movement and learns from each other.

Considering the spreading of similar initiatives in the community itself, it is noteworthy that the ECG is growing as a reference.

With the development of community-based, collaborative and shared work, community gardens are a way of resisting gentrification and a context for practicing partnership involving the community with their internal “specialized” groups, the private sector, the local administration, higher education institutions.

The experiences in the ECG show some typical features, as stated during their internal meetings and with other groups. Even if the communitarian, collective quality of the initiatives is reinforced, some members still have attitudes of dominance and control of the space as if it were almost private, willing to exercise and represent power as managers of the space and its production. Disputes about what to plant; where and how to plant; how to distribute production are frequent challenges. Whenever this takes a dimension that it starts to be perceived as a problem to the operation of the group, mainly because this kind of attitude creates conflicts, meetings should be organized to discuss how the individual can be expressed within the collective purpose of the garden.

Community gardens have then grown and strengthened areas of previous vulnerability, creating a healthy green leisure space, giving access to quality

food, exercising dialog. The kind of conflicts that arise in the context of the community gardens have a “treatable dimension” and, more than being problems, can be seen as opportunities to learn to solve conflicts through dialog a member expressing what has offended, bothered or been felt as lack of respect to his/ her right; the other processing the consequences of his/ her attitude; and both elaborating a solution to avoid the repetition of the conflict.

It can be perceived how low-income communities have resilience as their strength. If operational disagreements arise, also solidarity is present among their members, sharing personal resources in critical situations of their everyday life, regarding, for instance moments of illness and difficulty of communication.

Community Gardens are then a space of sharing resources, knowledge, learning to solve disputes and conflicts, organizing to plan and implement actions. Communication is being practiced involving every stakeholder.

For the Academy, it is being an opportunity of sharing knowledge, practicing solidarity, putting theories into practice. The Systemic Design methodology, associated with the principles of Solidarity Economy, is being an important guide to inspire propositions. Its principles are being transmitted and practiced as essential elements for building sustainability, for instance, 1) output-input: caring for the quality of the production, using natural control for harming elements, without the use of pesticides; production of composts; knowledge being exchanged between the academy and the community; 2) relationships: use of distribution of the gardening production to strengthen relationships; meetings to make collective decisions and share knowledge; fostering relationships among community/ society, universities/ academy; businesses/ industry; public administration; 3) autopoiesis: fostering the protagonism and conscious agent of every participant; initiatives to acquire autonomy; learning from each other and from previous actions; 4) valorization of local resources: knowledge, space, culture; 5) valorization of life: actions of inclusion, respect for the timing of nature; use of the space to provide wellbeing, more than the urge to produce to generate financial resources.

8. CONCLUSIONS

The CGP, in special in the ECG, has become an important social and academic practice, bringing to all participants – researchers, students, members of the community and of the public institutions – new knowledge and contributing

to the development of the society by using some effective methods, tools and actions. It is an opportunity for practicing diversity, exchanging empiric and academic knowledge, bringing together three pillars of the society: community, academy and public administration, trying also to increase the involvement of the “industry” to transform the environment.

Theories are being verified in practice. The systemic approach is proving to be very important for the broader goal of creating a context of change in order to try and solve chronic problems of our society by means of the protagonism of the community itself, which is also one of the bases of the solidarity economy.

After seven years of exchange between the participants of this network, changes have been materialized by the transformation of the area of geological risk into a productive community garden. It can be observed that the continuous cycles of the research-action methodology has been proven coherent with what happens in real life within a community, as an ongoing process of thinking, acting and trying to learn from it. The intensification of meetings and dialogs are contributions of the academic approach. Nevertheless, there is yet work to be done to make the cyclic production a reality, to establish a more harmonious relationship within the group directly involved and to broaden the participating group, for them to achieve self-management and formalize it also as a possible economically sustainable activity. It is also an enduring process making the community understand the possibility and the significant value of being autonomous. It requires behavior, social and emotional changes which, in its turn, requires time, strong connections and a greater development of the local cohesion.

Regarding the academic research, the CGP seems to be getting near to maturity, making possible to try and approach the actual elaboration of formal Systemic Design plans, with the deepening on the theoretical understanding of social cohesion and its relation to sustainability. The compilation of the identified best practices for spreading actions for integral sustainability as a means of improving the quality of life gathered in this seven-year experience, allowed us to propose a model of action that could be replicated, in order to disseminate the benefits of this kind of initiative to other territories.

As future developments, we hope that other groups will apply and provide feedback on this proposed model, expanding our network, the learnings and the benefits of pursuing integral sustainability.

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