Systematic Scientific Journal
ISSN: 2675-521

REVISTA CIENTÍFICA SISTEMÁTICA

PERCEPTION OF THE FAMILIES OF THE COMMUNITY OF VERTENTE – SERRINHA/BA ABOUT THE SUSTAINABILITY OF THE PRODUCTION SYSTEMS IMPLEMENTED BY P1+2

https://doi.org/10.56238/rcsv14n8-004

Submitted on: 11/11/2024 **Approved on**: 12/11/2024

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ABSTRACT

Social technologies are based on the empowerment and participation of users in the design and management of instruments and methodologies capable of directly improving their living conditions. Considering the conception of practice implied in social technologies, this work presents the experience of the implementation of production cisterns as instruments of income generation and food security for family farmers in poverty or extreme poverty in the Community of Vertente, in Serrinha-BA. We are interested in analyzing the changes that occurred in the community after the implementation of the production cisterns of the One Earth and Two Waters Program – P1+2, to understand the process of appropriation of this social technology by families and its use in simplified production systems. For this, we used the DRP – Participatory Rural Diagnosis as a methodological instrument for raising problems, systematizing and prioritizing data with a focus on the participation of farmers, and the construction of a participatory action plan. In addition to the visits to the family production units for the application of semi-structured interviews, conversation circles were held with the public served in the P1+2 between the years 2012 and 2016. The results of the research indicate that the construction of cisterns through P1+2 contributed significantly to the water sovereignty of the target audience. However, aspects related to the sustainability of production systems are insufficient to guarantee food and nutritional security for families, in addition to not ensuring an increase in income. Thus, we conclude that strategies are necessary to ensure the effectiveness of the Program and the advancement of the production chain of family farmers in the Community of Vertente in the municipality of Serrinha-BA.

Keywords: Social Technologies. Family Farmers. Production Cisterns.

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ISSN: 2675-521

INTRODUCTION

The research "Social Technologies: The possibilities of income generation and food security in the community of Vertente in Serrinha-Bahia" consists of a qualitative evaluation of the One Earth and Two Waters Program – P1+2 implemented in that Community in the period from 2012 to 2016. The research proposal proposes a dialogue with a conceptual basis on the theme of Social Technologies (ST) and its implications on the income and food security of the families covered by the Program with the implementation of plate cisterns – production cisterns, floods and/or second water cisterns – and their use in agricultural production.

Based on studies on Social Technologies and their implications for families in the rural areas of the semi-arid Northeast, the research evaluates the implementation of the One Land and Two Waters Program in the Vertente Community in Serrinha-BA, in the period from 2012 to 2016, when 22 second water cisterns were built for 22 families in the locality.

By implementing rainwater harvesting systems for simplified production systems and small farms, the Program considered these Social Technologies as efficient channels for promoting the quality of life of farmers through access to food and nutritional security and income generation through the stimulation of production based on practices and techniques of coexistence with the semi-arid region.

The motivation to research the results of the implementation of the P1+2 in the Community of Vertente and to evaluate the economic and nutritional aspects of the families covered by the Program stems from the twenty years of training and professional experience of the researcher Marcely Macedo, who collaborated in social organizations focused on the development of family farming in the Sisal Territory.

As a technical collaborator hired by these social organizations, it was possible to establish a more direct contact with rural communities and family farmers, which allowed Macedo to learn a little more about the reality of farmers contemplated by projects that had as their scope actions for coexistence with the semi-arid region and the implementation of rainwater harvesting systems for production.

The first service provided to the public of family farmers took place in 2003. Since then, the researcher has worked on several projects that, directly and indirectly, have made it possible to get in touch with the reality experienced by rural families and to form a critical look at the issue of the sustainability of water access programs and the use of the production cistern as an essential tool in changing the reality of countless families in the

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ISSN: 2675-521

semi-arid region.

The importance of the plate cistern to promote the improvement of the lives of families is already noticeable in the conduction of simple activities of homes in the semi-arid region. Activities such as drinking, cooking and producing are possible thanks to the installation of plate cisterns in the production units. However, in many cases, some of these Social Technologies do not achieve the objectives proposed by the programs. During the researcher's field actions, it was common to find abandoned systems, areas without any productive activity and cisterns in need of repair. From these observations, the interest arose in evaluating the impacts of the implementation of the P1+2 on the quality of life of the families benefited by the Program. The investigative process will present the elements that contributed to the situation observed by the researcher. Based on this, proposals for solutions built together with the Community will be presented so that the results of the Program are achieved, especially those related to the improvement of the quality of life through productive inclusion, food supply and income generation from the sale of agricultural products.

As it is a Professional Master's Degree in Territorial Planning, the Graduate Program aims to present solutions to the demands of society in various sectors. To mitigate the problems identified in this research, coping strategies were analyzed and we built together with the families benefited by P1+2.

As a product of the discussion and community construction of strategies to face the problems of implementation and success of social technologies for water abstraction in the Community of Vertente, a document in the form of an Open Letter will be built and presented. In it, the main problems pointed out by the benefited families – from the implementation phase of the P1+2 production cisterns in the years 2012 to 2016 – will be presented, as well as the possible solutions indicated by the Community. In addition, an assessment of the impact of Social Technologies for water abstraction in the semi-arid region on the generation of work and income and on the food and nutritional security of families in Vertente will be part of the document. The Open Letter will be sent to the bodies and instances responsible for the execution of the P1+2 in Bahia under the coordination of ASA Bahia. The aim is to propose adjustments and improvements in the execution of public policies, especially with regard to the sustainability of the projects implemented for family farmers in the Vertente Community.

The methodology adopted in this study considers the hierarchy of research problems. Therefore, a framework of priorities was set up and a BCG matrix was

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presented to the Community. Based on the information from the matrix, a Community Action Plan of the P1+2 was prepared to align and direct the Community's referrals for improvements in the economic and social scenario of rural properties. The results of this process point to ways for the actions of the programs of coexistence with the Semi-arid to be more effective and achieve the proposed results.

Social Technologies are a set of technologies, techniques, methods, practices, processes and products built, developed and applied in interaction with the population and appropriated by it. The objective of these technologies is to present solutions for social inclusion and improvement of the living conditions of the beneficiaries. (Dagnino, 2014). Thus, it will be up to the final product of the research to present propositions based on three aspects:

a) Identification of solutions to the main problems pointed out by the families;
b) Inclusion of other production systems that can be absorbed by the P1+2;
c) Proposal of other criteria for the selection of families that meet the family profile requirements and productive aptitude.

The community's experience will serve as a basis for the construction of a product model developed from popular listening, and which can be a beacon for the implementation of future projects and more effective public policies.

The inclusion of a public policy for access to water by families in the backlands of the Northeast enables significant social changes in the achievement of basic rights and guarantees citizenship. In this sense, plate and production cisterns have been the focus of studies developed in universities by research groups that focus on the problems faced by the rural population of the semi-arid region and that address the theme of coexistence with the semi-arid region.

This article addresses the following axes of discussion: Social Technologies and public policies aimed at coexistence with the Semi-arid Region; The emergence of initiatives to democratize access to water for coexistence with the semi-arid region; The action of the P1+2 in the Community of Vertente. The other components of this work are the methodological instrumentalization of the research, where the methodological paths, the results obtained and the final considerations are presented.

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SOCIAL TECHNOLOGIES AND PUBLIC POLICIES AIMED AT COEXISTENCE WITH THE SEMI-ARID REGION

The Social Technologies developed for rainwater harvesting are techniques that allow the interception and use of water in the process of draining a specific area to later be stored in a reservoir for domestic use and for family production (Gnadlinger, 2015). This Social Technology model promotes, for the countless families living in the semi-arid region, an opportunity to guarantee access to quality water for domestic consumption, for the production of food in the driest periods.

The Northeast region, especially the semi-arid region, has the lowest income and human development indexes in Brazil. To change the reality of this region, it is important that governments act more efficiently, and it is necessary to formulate strategies capable of minimally providing the guarantee of basic rights and citizenship. According to IPEA data, about 30% of rural establishments in the semi-arid region do not have any type of water resource available (Castro, 2021).

The rural population is the one that suffers the most from the little access to water for drinking and cooking. Family farmers in the semi-arid region have little access to services and public policies that guarantee their survival. The lack of investment and the neglect of governments contributes to this scenario, and it is important to provide more resources and subsidies to reaffirm the commitment to the economic and social development of the region.

The absence of strong, permanent and accessible public policies for family farming contributes to the maintenance of a welfare and authoritarian political regime that prevents progress in the Northeast and generates a recurring picture of uncertainty for the population, which is the most affected by the negative effects of this scenario, and which cannot see, alone, the ways to change this reality.

THE EMERGENCE OF INITIATIVES TO DEMOCRATIZE ACCESS TO WATER FOR COEXISTENCE WITH THE SEMI-ARID REGION

The 1 Land and 2 Waters Program is a public policy that proposes the development of the semi-arid region based on programs for access to water and land as a solution to hunger. Constituted from initiatives of the Zero Hunger Program, in 2008, it was part of the Lula Government's program in its second term.

The idea of P1+2 was to stimulate food production on rural properties in municipalities in the semi-arid region through the construction of reservoirs of cement

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plates in the shape of a cylinder, covered and grounded, so that water is not lost in the evaporation process and that it is possible to control the temperature of the reservoirs as a result of the intense heat (ASA, 2021).

Rainwater captured through the roofs of houses in rural facilities or from built concrete areas – such as sidewalks – is channeled through pipes and gutters to reservoirs with a capacity of 52m³. The stored water is used in small irrigation systems or manually to maintain crops with short or permanent cycles, and also to water animals. It is an alternative for coexistence with the semi-arid region through solutions to mitigate the effects of drought in the warmer months.

Initially, P1+2 was imagined in a development logic that understood access to water and land as a means for the inclusion of rural families in the production process, so that this inclusion could provide satisfactory results in terms of food and nutritional security. In this sense, the adoption of more sustainable production practices and appropriate techniques for coexistence with the semi-arid region were seen as means for a sustainable production of the food supply and in the raising of small animals for the subsistence of families.

In fact, in the set of initiatives that make up the strategies for the development of the Semi-Arid Region, the Articulation of the Semi-Arid Region - ASA1 plays an important role. The Entity was a pioneer in the action and mobilization of a policy of coexistence with the semi-arid region in the Northeast, which resulted in a national action with the support of several social organizations for the creation and implementation of a public policy that could combat the problems generated by drought and lack of water.

In this sense, ASA's proposal was to present an effective model for coexistence with the semi-arid region and mitigate the impacts of the lack of public policies for the Northeast region, such as unemployment and poverty. The neglect of the public authorities and the lack of more efficient projects and programs to face these problems placed the neediest population in a condition of high social vulnerability and extreme poverty.

Formed by more than 800 civil society organizations, international cooperation, public and private institutions, the Catholic Community and the Public Power, ASA has joined efforts to develop actions that allow productive inclusion and access to drinking water for the consumption of thousands of needy families in the Brazilian semi-arid region. This effort resulted in the promotion of a set of important initiatives that came to integrate future government programs through the creation of laws and public policies, such as P1MC2 and P1+23.

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Before the implementation of the public policy of the P1+2 as a government program in 2008, other entities worked on the production of a pilot project of the P1+2 in several regions of the Northeast. Coordinated by ASA, the Community Organization Movement – MOC acted in the execution of the project that led to the construction of 04 underground dams and 04 sidewalk cisterns in four municipalities in the Sisal territory.

As a way to improve the knowledge of the technical team that would work in the execution of the pilot project, the Community Organization Movement – MOC designated a small group formed by 04 agricultural technicians to learn about the methodology and experience in the municipality of Afogados da Ingazeira – Fr. The year was 2006 and the entity visited was CECOR4. The trip contributed to the training of the technical team that, upon returning, was able to apply the knowledge acquired in the execution of the pilot project.

For the project to be carried out in the territory, the MOC had financial support from international organizations: the funding came through PFIZER, a large German laboratory that allocated the amount of U$$ 87,500.00 (dollars) for the construction of four underground dams and four sidewalk cisterns in the municipalities of Araci, Teofilândia, Queimadas and Riachão do Jacuípe.

The definition of the criteria for choosing the municipalities was based on the results generated from the execution of another Program, the PETI (Program for the Eradication of Child Labor). PETI was created in 1996, in 2005 it was integrated into Bolsa Familia and in 2011 it was included in the LOAS (Organic Law of Social Assistance), which was part of the National Social Assistance Policy – PNSA.

The PNSA worked to combat child labor through income transfer actions to strengthen the family scenario and childhood and adolescence. Even before the implementation of P1+2, PETI adopted in its initial proposal the construction of social technologies for coexistence with the semi-arid region for needy families with the objective of stimulating the use of simple production systems to supply food to the children served by the program.

The requirements for children and adolescents to join PETI was that families ensure that their children remain in school. In return, the families would receive a scholarship in the amount of R$ 25.00 (twenty-five reais). The project also offered technical assistance and the construction of plate cisterns to supply rainwater for use in household chores and for use in food production.

As a way to stimulate agricultural and livestock activity, small batches of goats or

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sheep were distributed to expand the offer of income generation and food security for families benefited by PETI, respecting the specificity of each production unit.

The P1+2 pilot project, coordinated by the MOC, focused on income generation through the implementation of social technologies as instruments capable of transforming the economic reality by promoting the production of small crops for subsistence and the raising of small animals, enabling an economic alternative and effectively contributing to the return of these children and adolescents to the school environment.

As a result of the results obtained through the implementation of the P1+2 pilot project, the MOC was invited to participate in the First Northeast Meeting of Social Technologies that took place in August 2007, in São Luís-MA and had as its theme "*Contributing to the Construction of the National Policy of Social Technology".* The main objective of the Meeting was to contribute so that the states could share knowledge and learn from each other to implement experiences of social technologies in their states.

On the occasion, the MOC appointed, as representative, Marcely Macedo who, at the time, acted as technical responsible for the execution of the Project in the four municipalities. Thus, the performance in the MOC and the participation in the First Northeast Meeting of Social Technologies are the basis of the researcher's interest in the qualitative aspects of the use of Social Technologies as instruments of income generation and food security.

During the Meeting, the experiences acquired with the implementation of the P1+2 pilot project and the results obtained in the benefited properties after the acquisition of social technologies were shared with other civil society organizations. The processes for the implementation of social technologies were presented, from the stages of choosing the site, selecting families, training for the management of the projects to the construction of the equipment, in addition to the methodology adopted for the monitoring and supervision of field actions in the construction and post-construction phases.

The communities selected for the implementation of the pilot project were Mucambo, Barbosa, Minação and Gregório. All communities met the mandatory requirements for inclusion in P1+2 and belonged to the municipalities of Riachão do Jacuípe, Araci, Teofilândia and Queimadas, respectively.

To discuss the issues involving the use of Social Technologies for coexistence with the Semi-arid and their implications in the lives of family farmers, this investigation resorts to the fundamental concepts of Social Technologies. The main objective is to understand how these tools collaborated to obtain economic results and food security for rural families

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served by P1+2 in the Vertente Community in Serrinha – BA.

P1+2 ACTION IN THE STRAND COMMUNITY

At the invitation of the Ministry of Social Development – MDS, Petrobras consolidated its partnership with the Articulation of the Semi-Arid Region – ASA through a contract for the construction of twenty thousand social technologies for the collection and storage of rainwater for food production and small animal husbandry with the objective of serving 100,000 people. In all, there were 65 social institutions throughout the Northeast that, in partnership with ASA, provided the service and execution of the P1+2 in several municipalities in the semi-arid region (MOC, 2013).

In Bahia, some social organizations under the coordination of ASA were selected for the challenge of guaranteeing access to water for production for thousands of poor and rural families. In Serrinha, the entity responsible for the execution of the P1+2 was the Association of Small Producers of the Municipality of Serrinha – APAEB. The entity also operated in other municipalities in the Sisal territory and in the territory of the Jacuípe Basin in the period from 2012 to 2016.

With thirty years of foundation, APAEB Serrinha has been present in supporting and providing services to ensure the development of family farming in the region. In the 90s, APAEB established a commercial relationship based on the exchange of goods between farmers. At that time, the rural population suffered from the drought of 1993 and the State promoted actions called "work fronts" to guarantee a minimum income for people's survival.

Many farmers, because they did not have any kind of income, worked in joint efforts to clean tanks and dams and carry out repairs on side roads in exchange for food. APAEB was the entity responsible for the execution of these work fronts, which caused many families to move to the APAEB shed (mill) to pick up goods such as food, tools and other items of immediate need.

During the period in which she worked in some social organizations in the Sisal Territory, this researcher accompanied many families and had contact with the experiences, reports and testimonies of people served by numerous social programs focused on the development of family farming. As visiting rural communities was one of her duties, the researcher verified, *in loco*, that many production cisterns or second water cisterns had some type of problem related to the low productivity of the systems installed in the production units of the family members, which aroused interest in a more systematic

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investigation of the situation.

Even though many families had been contemplated with a sidewalk or flood cistern, it was very common for them to complain about the time allotted for the maintenance of the production systems. Compared to the other productive activities of the properties, the care and management of the productive backyards consumed more time.

The models of production systems incorporated into the production cisterns are formed by the distribution of seedlings, equipment, inputs and tools for the maintenance of the productive backyards. Productive backyards are small spaces within the property intended for the production of vegetables, orchards, medicinal plants, short-cycle crops, used for self-consumption by families, as well as the raising of small animals.

According to Decree No. 11,642, of August 16, 2023, productive backyards are areas of individual or collective land, of private establishments or with recognition of possession, used for agricultural purposes and sustainable production, intended to promote the economic autonomy of rural women. (Brazil, 2023). Family farmers have a specific work dynamic that is determined by the concentration of work and effort on the survival of their peers and the productive unit. In this context, the work in the production unit is carried out in a family way.

According to Chayonav (2001), family farmers are aware of the risks involved in the maintenance of production systems and compare them with the time and effort required by the work to ensure the permanence of this system, evaluating the economic return and subsistence of the family.

Thus, the objective of this work is not to question the importance and effectiveness of the production cistern as a Social Technology necessary for the life of thousands of rural families in the semi-arid region, but to evaluate the aspects of interest of the Community and the families contemplated and to build proposals for solutions and actions that ensure the permanence and sustainability of the systems implemented by the P1+2.

The intention is to contribute to the actions achieving the results established in the Programs, especially with regard to the improvement of the social and economic conditions of the families contemplated. In this sense, it is necessary that Social Technologies achieve satisfactory results in the generation of work and income and food security in the implemented production systems.

A study by the Secretariat of Evaluation and Information Management of the Ministry of Social Development about the P1+2 published in 2012 showed that the families consulted in the survey valued the opportunities brought by the Program, and that the

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transformations provided by the construction of the sidewalk cisterns enabled a greater volume of water collected, stored and available for daily consumption. However, in relation to the production system, the families declared that some actions of the program were not sufficient to ensure economic sustainability to meet economic needs and food and nutritional security (Brasil, 2012).

Based on this study, it became pertinent to evaluate the reality of the families of the Vertente Community to verify how they evaluate the actions of the P1+2, and how they can contribute, through their experiences and considerations, so that the expected results are achieved by the new families served.

Considering the result of the evaluation of the P1+2 carried out by the Ministry of Social Development, and the results obtained in the field stage of this investigation in the community of Vertente, it was found that some problems are still recurrent in the speeches of the rural families served by the programs.

Sixteen years after the implementation of the Cisterns Program by the Federal Government, and twelve years after the Ministry of Social Development's survey, the persistence of certain problems leads to a critical perception of how social programs interfere in the social and economic change of rural families in a sustainable manner, and of the need to include measures that enable the improvement of the quality of life of the families served.

THE METHODOLOGICAL PATH OF THE RESEARCH

This is a qualitative study that aims to evaluate the efficiency of production cisterns as instruments that provide income generation and food security for families in the Community of Vertente-Ba contemplated with the P1+2 Program. According to Gil (2002), qualitative research allows the researcher to identify the various variables found in a sample and to evaluate the nature of the relationships in order to explain the phenomena found.

The methodology is supported by bibliographic research, which includes the most relevant works on the topics addressed in this work, in addition to documentary analysis of the records collected by the verification instruments applied in the field stage of the project's execution. By means of semi-structured questionnaires, the reports of the investigated public were analyzed. The families benefited by the P1+2 Program were questioned about aspects related to the means of production generated from the use of the production cisterns. They were also asked about the work and the division of time in

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the management of these systems.

After the bibliographic, documentary and field stages, the data analysis phase was concerned with establishing contacts with the data collected in the research. For Franco (2021), analysis activities consist of establishing contacts with documents and interpreting the texts and messages contained therein, no longer invading by impressions, representations, emotions, knowledge, and expectations.

With the documents and texts in hand, the contents were read and analyzed for data treatment and direction of compatible academic readings. Content analysis was used to study the documents and texts, which, according to Bardin (2015), aims to present a critical appreciation of content analysis as a form of treatment of qualitative and quantitative research.

The questionnaires were answered in the families' production units, in the area intended for the construction of the production cistern and the production systems. The visits were scheduled in advance with the community leadership, and the dates and times were previously agreed with the families. This stage had the support and monitoring of local leaders so that families could feel more comfortable answering the questions. All family units were visited, however, it was not possible to question all the beneficiaries of the Program. Eleven farmers were interviewed in a universe of twenty-two families served by P1+2 in the community of Vertente. The identity and names of the interviewees were duly safeguarded in observance of the preservation of the integrity of those involved, in accordance with the requirements established by the Law and the Ethics Committee.

In order to characterize the farmers served by P1+2 in the community of Vertente, the information collected with the application of the questionnaire was systematized, the results of which are described below.

Of the public served by the program, 51% are women, with the majority of women in the family composition of the production units, 46%. The profiles of the age group of family members are made up of adults, aged between 19 and 59 years, with children and the elderly, 28% and 7%, respectively.

Regarding the insertion of the public served in the school environment, only 17% reached the high school level; Of these, 22% are of school age, which leads us to conclude that a considerable portion of young people and adults do not complete the basic level of schooling.

Regarding the parameters of land ownership and productive use, 50% of the families have an area above 5 ha of land, an area maintained for a total of 46% of the

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public served, that is, considering the area available for production and the number of people existing in each family unit, the size of the property is considerably reduced, reaching an average of 0.15 ha per person. This result reinforces the discussion on access to land and means of production to ensure food sufficiency and sustainability of this sector and family farming, especially in the semi-arid region.

Access to technical assistance and public policies to encourage the family farming production chain for the public served by P1+2 in the Vertente Community is also very limited. According to the information collected, half of the families are served by some ATER entity through partnerships with social organizations and the government of the state of Bahia, through the Secretariat of Rural Development – SDR.

Access to credit is still a challenge faced by families. Less than half managed to benefit from some line of credit from programs to strengthen family farming, PRONAF. The assessment of the interviewees is that this type of incentive is decisive to ensure better economic results for families, with part of the resources being allocated to improving the infrastructure and production systems of the family unit.

According to Wanderley (1996), family farming has always occupied a secondary and subordinate place in Brazilian society. For the author, this simplistic and disinterested view of governments makes it impossible for family farming to advance in the development of its potential as a social model of production compared to other countries. It is important to discuss the advancement of this sector not only with the inclusion in water access programs, but with the creation of conditions for the sustainability of families in the countryside, generating job opportunities, income and citizenship for the entire population, especially in the poorest regions, such as the semi-arid northeast.

For data collection, in addition to the field investigation methodology, face-to-face collective meetings were held. The collective meetings took place at four different times, and had an average participation of approximately 50% of the public benefited by P1+2 in the Community. Of the total of 22 families benefited from the second water cisterns, there was an average participation of 10 families.

In order to outline a participatory and inclusive methodology focusing on the results presented in interviews and field visits, we adopted the methodology applied in the conversation circles. According to Moura and Lima (2014), the conversation circle is a narrative research instrument that enables the collection of data from dialogues, reflections and experiences of the subjects obtained by the educational practices conducted by the researcher, enabling the observation and reading of internal dialogues

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and reflections on the process of participation and mediation among peers.

With the commitment to meet the planned objectives, the conversation circles were divided into three distinct moments. The content addressed in the first activity explored the positive aspects of the insertion of families from the community of Vertente to the P1+2, retrieving the memory of how the implementation process took place, what were the main challenges faced in the execution and the expectations of the families with the arrival of the Program.

In the following conversation circles, the research sought to understand the productive organization of family units with regard to the use and application of production cisterns. In this sense, the participants were provoked to suggest solutions and strategies for the problems related in the previous stage. Each family exposed the particularities of each production unit, and the similar ones of the events among the participants were explored.

In the third meeting, with the results obtained from the last conversation circle, we suggested the creation of the *problem tree*, an interesting tool to attribute the causes and effects proven by each problem. According to Souza (2010), the tree is a methodological instrument used as a tool for Participatory Rural Diagnosis and aims to identify and analyze each problem in order to establish the causes and define the solutions that will be given as a starting point.

PROBLEMS RAISED BY THE FAMILIES SERVED BY THE P1+2 IN THE COMMUNITY OF VERTENTE

In view of the problems raised by the families in the conversation circles held in the community, important elements were detected that, in view of the public's evaluation, were decisive in compromising the production results and in the sustainability of the Program.

From the discussion that involved the stages of implementation of P1+2 in the community of Vertente, the group of farmers pointed out other priority problems that can be observed in Figure 1, which presents all the problems raised by the families served by the program.

With this information, the farmers were provoked to mention the losses caused in the implementation, which were categorized on a scale of importance through a prioritization matrix that determined the severity of the problems (Figure 2) In view of this, the research made it possible to outline, through participatory planning, how the

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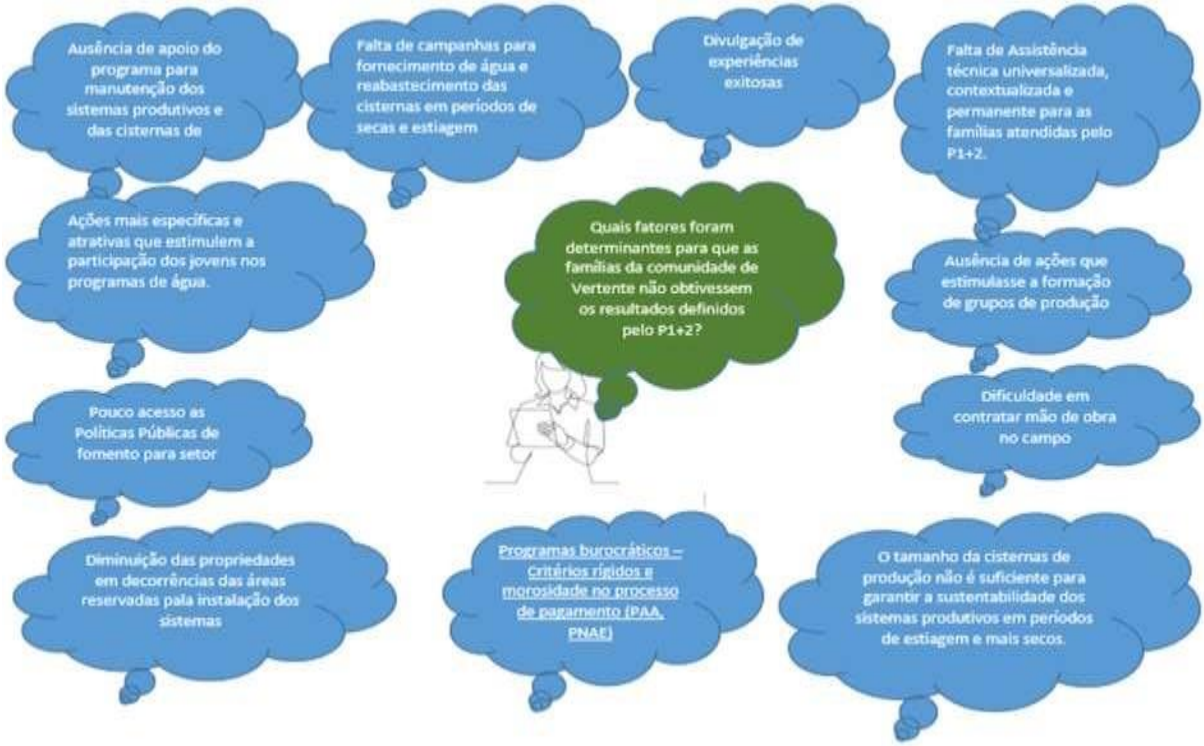
community will outline the strategies and solutions for each problem.

Figure 1 – Systematization of the problems pointed out by farmers in the conversation circles held in the community of Vertente, 2024.



Source: Prepared by the author, 2024.

Figure 2. Main losses pointed out by the families served by the P1+2 in the community of Vertente, 2024.

PROBLEMS RAISED BY FARMERS	MAIN LOSSES
Lack of support from the program for the maintenance of production systems and second-class cisterns	Stoppage of productive activities
Lack of campaigns to supply water and refill cisterns in periods of drought and prolonged drought.	Leaky cisterns
Dissemination of successful experiences	No reference to successful models
Lack of universal, contextualized and permanent technical assistance for families served by P1+2.	Low crop productivity
More specific and attractive actions that encourage the participation of young people in water programs.	Evasion of young people from the countryside
Little access to Public Policies to promote the sector	Bureaucratic process for access to AF Incentive Programs
Decrease in properties as a result of the areas reserved for the installation of the systems	Absence of appropriate technologies for cultivation in Small areas
Bureaucratic programs – Rigid criteria and slowness in the payment process (PAA, PNAE)	Lack of capital to pay for basic expenses.
The size of the production cisterns is not enough to guarantee the sustainability of the production systems in dry and drier periods.	Production systems impaired with supply in this period

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Difficulty in hiring labor in the field	Low pay and devaluation of fieldwork
Absence of actions that encourage the formation of production groups	Difficulty in accessing credit programs for structuring the UPF and access to marketing channels to assist in the organization of the production chain.
Devaluation of products sold by farmers	Waste of food produced at UPF.
Lack of supervision of the Project	Discontinuity of the Program and non-compliance with the stages Planned not P1+2

Source: Prepared by the author, 2024.

In the process of constructing the concepts worked on in this research, and in view of the problems presented by the farmers, it is necessary to rekindle the debate about the important role of public policies in the promotion of human dignity, greater equity and social justice. It is necessary for civil society to act more effectively in aspects involving social participation; in the specific case of the families served by the P1+2, greater attention is needed to the process of listening and welcoming the proposals for solutions to the problems encountered. In this sense, Cruz (2016) argues that, for the effective participation and empowerment of society, it is necessary to formulate a participatory diagnosis with those involved in public policies, in addition to the development of actions to reassess and reorient actions for the necessary adjustments.

The researcher's perceptions of the scenario of abandonment and underuse of production cisterns verified during the period in which she worked were reiterated in the field visits and confirmed by the testimonies of the families who complained about the absence of more effective actions of the programs. According to Wanderley (1996), family farming has always occupied a secondary place in Brazilian society, and the simplistic and disinterested view of governments makes it impossible for this sector to advance.

For all those involved in the conversation circles, the lack of permanent and universal technical assistance for the public of family farmers is still insufficient. The discontinuity of programs and public policies weakens and weakens the continuity of actions. This factor is extremely related, according to the families, to the paralysis of production systems and the occurrence of unproductive family units.

Another factor pointed out by the public involved in the research was the negligence of the agencies responsible for the implementation of P1+2 in ensuring the supply and supply of water in the driest and most dry periods. The families served by the social programs are in a very needy social class and do not have the resources to buy water trucks to supply the cisterns and for domestic use. This scenario directly

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compromises the useful life of cisterns which, due to the intense heat, have their structure compromised by cracks and holes that require repairs that families are unable to carry out immediately.

The size of the properties is also a limiting factor for the advancement of the sector's production chain. The families reported that in addition to the lack of family labor and the difficulty in hiring, family production is not valued, as well as work in the field. These factors reflect on another issue addressed in the survey, which is the migration of young people from the countryside in search of job opportunities in urban centers and other regions of Brazil.

In summary, the properties have low productivity, the products are not attractive and do not have market value. Thus, initiatives to foster the production chain are not enough to guarantee a financial return for families, which means that production is often donated, wasted or, in some cases, there is no production at all.

For Chayanov (2001), the peasant family organizes its production by a subjective evaluation based on agricultural work and the degree of self-exploitation of work, that is, it is a relationship between satisfying the needs of the family and the hardship of work. This leads to a perception among farmers that dedicating the work of family members to the maintenance and management of the simplified production systems offered by P1+2 does not guarantee compensation in the face of the expected production. On this aspect, Abramovay (1992) points out that public policies should stimulate the formalization of decentralized projects capable of valuing local and regional attributes in the development process.

FINAL CONSIDERATIONS

In general, families recognize the value and importance of water access programs both for the community and for their lives. This is evident in statements that emphasize the benefits of access to water for domestic activities such as drinking and cooking. The problem lies in the articulation between the production cisterns and the production systems of the family units, and is due to the absence of support initiatives to maintain public policies in more critical periods such as drought, in addition to the lack of integrated actions to stimulate other economic arrangements respecting the reality of each location.

At this point, this research has not yet been able to determine what will be the alternatives and solutions proposed by the Community of Vertente-Ba for the problems pointed out. Suggestions for the success of the P1+2 Program and other similar programs

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ISSN: 2675-521

will be discussed based on the insertion of the public involved and interested in the action. In this context, participatory plans are instruments that characterize societies that are aware of the challenges imposed by their territory and committed to facing them collectively.

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ISSN: 2675-521

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