



## CISTERN POLICY IN THE RURAL NORTHEAST: AN ANALYSIS FROM THE PERSPECTIVE OF TRAINING



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### ABSTRACT

Public policies for rural areas mostly follow the expansion of agribusiness, where those that aim to reduce poverty, most of the time, treat this phenomenon in a one-dimensional way, usually as insufficient income, which leads to flawed intervention mechanisms. Apart from this aspect, perceptions of well-being of poor people in rural areas are linked to the environment and subsistence conditions, in which environmental phenomena affect groups in poverty more intensely and generate different vulnerability for each person. Because it presents this temporal dynamic, vulnerability is difficult to conceptualize and evaluate. Having the above, this work intends to analyze the importance, based on the expansion of capacities, of public policies aimed at access to water through cisterns as promoters of increased freedom with regard to human development. Amartya Sen's development as freedom will be used to think about the relationship between poverty, vulnerability, political and social emancipation in the design and implementation of public policies that seek to address the economic and social ills of those affected by drought.

**Keywords:** Training Approach. Drought. Cistern Policies in the Brazilian Northeast.

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## INTRODUCTION

In budgetary terms<sup>4</sup>, public policies for rural areas mostly follow the expansion of agribusiness; those that aim to reduce poverty, most of the time, treat this phenomenon in a one-dimensional way, usually as insufficient income, which leads to insufficient intervention mechanisms. Here, poor is considered to be that person who has the hardships to lead the life he values, where income is one resource among many others that can be a means to end poverty, depending on the purpose that is given to its use.

Poor people's perceptions of well-being, especially in rural areas, are strongly linked to the environment in terms of their livelihoods and the power to control their own lives. Environmental phenomena, in addition to affecting people in conditions of poverty more intensely, tend to make people vulnerable in a different way, and these differences are highly related to the states experienced before the occurrence of the phenomenon. Vulnerability, therefore, is characterized by presenting a temporal dynamic, which is why it is difficult to conceptualize and evaluate it. It is necessary to monitor the data over the years and know from individuals if they perceive a worsening in their quality of life. However, public policies aimed at coping with and living with natural phenomena tend to be based on emergency actions, without monitoring over time, neglecting the vulnerability of people in the process.

Both vulnerability and poverty are complex and multidimensional. Therefore, it is necessary to consider these dynamic particularities in the formulation of public policy proposals. This work intends to analyze the importance, based on the expansion of capacities, of public policies aimed at access to water through cisterns as promoters of increased freedom with regard to human development.

Amartya Sen's development as freedom will be used to think about the relationship between poverty, vulnerability, political and social emancipation in the design and implementation of public policies that seek to address the economic and social ills of those affected by drought. It is a way of seeing development from the realization of human potential. For Kerstenetzky (2000), Sen's ethical dimension in work is an envelope, not restricting human purposes to the space of having, even though this is important, but hierarchically overlapping doing and being that correspond to functioning. Development now has objectives that consider ethics and justice.

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<sup>4</sup> MAPA's budget in 2024 is R\$ 20.44 billion and the MDA's R\$ 1.23 billion.

Source for MAPA budget: <https://portaldatransparencia.gov.br/orgaos-superiores/22000-ministerio-da-agricultura--pecuaria-e-abastecimento>; Source for MDA budget: <https://portaldatransparencia.gov.br/orgaos/49000?ano=2024> Accessed from both sites: 06.04.2024.



According to the Senian normative approach, public action must consider agency and well-being. According to Sen (2000, p. 24), the exercise of freedom is mediated by values that are influenced by public discussions and social interactions, which are influenced by freedom of participation. Public policies aimed at increasing substantive freedoms, therefore, should act by promoting distinct but interrelated freedoms. As valued freedoms are expanded, not only do people's lives improve, but there is greater interaction with the world and greater participation in society. But this all implies autonomy and this is not always seen with interest by the portion of society that holds power.

This involves two central aspects that will be analyzed here in public policies: the concern with freedom in its aspects of opportunity and procedure and the condition of agent. In this sense, public policies should aim to promote training and human rights. Thus, as proposed by Porsse and Klering (2008), the Training Approach (CA) presents itself as an alternative model to analyze the efficiency and equity of government actions, as presented in section 2; subsection 2.1 presents CA and public policies. In addition, the specific literature on drought and cisterns for the northeast of Brazil, in section 3; subsection 3.1 presents the initiatives of the Brazilian Semi-Arid Association (ASA), especially the One Million Cisterns Program (P1MC), as well as the initiatives of the National Program to Support Rainwater Harvesting and Other Social Technologies (Cisterns Program).<sup>5</sup> The method and analysis of the cistern policy considering the expansion of capacities is presented in section 5. Section 6 brings the final considerations, followed by bibliographic references.

## **A SENIAN CONCEPTION OF JUSTICE**

Here a normative evaluation of public policies and individual well-being is proposed, which are the capacities and functioning that a person can achieve. Capacities are the freedoms that people have to do and be as they see fit for themselves, that is, their freedoms to appreciate values of being [beings] and doing [doings]. Functioning, which are the achievements of the individual, reflect living conditions, states of existence, and can be elementary, such as being well nourished, free of preventable diseases, as complex, such as having self-respect, dignity. It is an approach to human potential and the realization of

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<sup>5</sup> The One Million Cisterns Program (P1MC), an initiative of the Brazilian Semi-Arid Association (ASA), inspired the development of the National Program to Support Rainwater Harvesting and Other Social Technologies (Cisterns Program), with the most active action of the government. It is worth mentioning that although established in 2003, the Cisterns Program was only regulated in 2013, supported by Law No. 12,873/2013 and Decree No. 8,038/2013. Budgetary actions since 2003 sought partnerships with ASA and government agreements, culminating in the regulation of the Cisterns Program in 2013.

that potential; In this difference lies freedom, that is, the possibility that the person has to be and act as he considers best for him.

From the perspective of development as freedom, a right is a statement that affirms the value – that is, the importance, desirability, or merit – of a certain freedom for someone. Similarly, to affirm the importance of keeping free from certain states considered to be offensive to human dignity is to affirm the existence of human rights to protection against those states. Therefore, the rights of persons are essentially ethical-normative statements based on the importance of certain human freedoms.

A human rights policy can be defined as a set of public actions in favor of substantive freedoms seen as relevant, from an ethical point of view, by society. By fostering and safeguarding personal freedoms, the human rights policy on the agenda can, from the perspective of development as freedom, act as development policy. Therefore, development and human rights policies have the same general purpose – to protect and expand socially valued substantive freedoms – and can have many instruments of action in common. What perhaps most differentiates the two types is that, while development policies focus positively on the expansion of human freedoms, human rights policies will place more emphasis on mitigating and/or eliminating the sources of human freedom deprivation, such as poverty, hunger, social marginality, morbidity and illiteracy. among others.

Amartya Sen (2000), the formulator of this proposal, states that by focusing on freedoms to evaluate development, he is not suggesting that there is some single and precise development criterion according to which different development experiences can always be compared and classified. It is necessary to consider what people in the region consider important for a good life, and then expand the empowerment freedoms of these factors. Sen (2000) sees development as a process of expanding the real freedoms that people enjoy. In this approach, the expansion of freedom is considered a primary end and the main means to development.

Based on the ideas of Amartya Sen and others, the view that a developed community is one whose members are person-subjects of multiple rights – that is, rights that contemplate multiple dimensions of human happiness – is increasingly consolidated in academia, in political discourses, in social movements. According to this perspective, a country will be more developed the more human rights, in a broad sense, are recognized, protected, guaranteed and fostered.

In addition to being a challenge for development, removing the sources of deprivation of human freedoms is a matter of justice. In his theory of justice, Sen (2011, p. 111) aims to identify and analyze the serious social injustices that spread throughout the



world. Now, a person who is the victim of a serious social injustice is a person deprived of freedoms that society considers ethically very important. There is a collective moral judgment that declares this person's situation unacceptable. Therefore, according to the conception of human rights as an ethical judgment on the importance of a given freedom, the role of identifying, denouncing and effectively combating the sources of serious deprivations of liberty would fall mainly to human rights policies.

There is no single and perfect way of life that should be followed, in other words, development proposals must consider the life that communities, with their cultures and customs, deem worthy. Therefore, here we consider what the literature on rural development usually calls a type of life, or way of life. It is not a matter of removing this contingent of people and taking them to the urban environment; It is a principle that the choice of life has to be respected and what is sought are means that lead to freedom so that this population has the life they wanted and that constitute this freedom.

When proposing a development policy, in the view of Sen (2000), it is necessary to know if the person values his life and the options he has. Analyze if this person acts in such a way because he or she thinks it is better or if he or she does not have access or training to act in another way. Still, it is necessary to know if he values the options he cannot have, or if he is unaware of the options available to other people. The principle of human development lies in evaluating the life that people are forced to lead and the one they would like to exercise through social reforms. Therefore, Sen (2000) defends the expansion of human beings' freedom of choice, which is the greatest challenge for development.

The analysis of the conception and execution of public policies aimed at those affected by drought in northeastern Brazil seeks to understand the relationship that Sen (2008) establishes between individual freedom and a developed society. The author states that individual freedom is essentially a social product and that social provisions aim to expand individual freedoms, as well as these individual freedoms make social provisions more appropriate and effective. In other words, free individuals make society freer and a freer society tends to create space for more opportunities for freedoms, in a virtuous circle of freedom. It is to this interaction that the author points out that the analysis and evaluation of public policies must be directed.

According to Bobbio (1996), there is no definition for the concept of freedom and seeking such a single concept, given the diversity it carries, is a waste of time. However, the author sees the debate about freedom as constructive and differentiates it, in general, between negative and positive freedom. Negative freedom has this name because it denies something: impediment and constraint. Thus, freedom lies in the fact that there is no



impediment to an action and the person is not constrained to act in a way that diverges from his will. Positive freedom refers to autonomy "a situation in which the subject has the possibility of directing his own will towards a purpose, of making decisions, without being determined by the will of others". (p. 51).

Thus, it is not enough to analyze only the limitations caused by the drought, but to try to capture the restrictions that occurred before and that were accentuated by the natural phenomenon. Through the concept of functioning it is possible to perceive the multiplicity of factors that can be considered ethically valuable. Functioning is the constituent element of people's well-being. Approaches that predict packages of goods or income and consumption ranges analyze human beings in a homogeneous way, while perception through freedoms allows public decisions to be made based on real needs and desires.

## PUBLIC POLICIES AND THE CONDITION OF AGENT

It should be noted that freedom does not encompass any desired lifestyles, but only those compatible with a certain social judgment. That is to say, what counts as substantive freedom includes the personal power to have styles that are valuable to society, and not just to the isolated individual. Therefore, for a person to have a valued life, from a rational point of view, he needs to reach certain states and activities considered desirable, according to criteria discursively sustained in a community. Necessarily, this is done through a practice of public communication. At least in today's democratic societies, the practice of a discursive, free, and open public reason is an essential condition for a community to form lasting and legitimate judgments about the types of life that should be valued.

The condition of agent presented by Sen presupposes an active participation of the members of the community, as they improve not only their condition, but also influence, help and seek to improve the lives of others. Often, social pressures and the direct participation of the community in the inspection of public policies increase the State's performance and improve its efficiency. However, this participation tends to be expanded in freer communities, that is, freedom expands the condition of agent and the condition of agent expands the degree of freedom. Sen (2008) distinguishes well-being and the condition of agent within human action and search. Well-being is a more individual state, it is linked to what the person desires or already does and is; the condition of agent, on the other hand, is more related to values, culture, moral obligations and does not necessarily increase the agent's well-being. Although, as Sen (2008) explains, the search for well-being can be an important goal for an agent, the condition of agent is beyond feeling, they are



acts and states that do not aim only at the individual good, but at what is considered correct.

It is emphasized that the increase in freedom involves the expansion of alternatives to what is valued and not a context with more choices, regardless of what individuals consider important for their lives. Hence the fundamental need to know the demands of the community to be integrated into public policy. In addition, from the operational point of view, one of the decreases of welfare involves the involvement of the community, from conception to the inspection of public policy, where it is no longer seen as a passive agent of the process. This participation has an intrinsic and instrumental character. Thus, in the analysis of public policy, it is necessary not only to verify the promotion of well-being, but also to see if there has been an increase in the power to carry out what is considered important.

Personal motivation is often used as an argument against Sen's proposal. The author does not deny its importance in the choices of individuals, however, he states that most people do not make their choices freely. Therefore, he emphasizes the importance of interpersonal comparison and argues that, even in choices between distribution and efficiency, people should be analyzed in their context and that equality can pass through inequality. It is a question of equity and not equality. For example, a person who has a physical limitation, if it is perceived by a public policy of income distribution in the same way as a person with full motor capacities, these people will not necessarily be in an equal situation, since the needs of the former differ greatly from the latter. The social, political, and economic space that we conquer during life are strongly related to the starting point and the path faced. Looking only at the arrival without considering the route puts inequality on an equal footing.

The emphasis on an evaluative space that considers interpersonal comparison may have contributed to the criticism that the Senian approach uses methodological individualism as a method. However, Sen (2012) counters by stating that not only are individuals affected by the social environment, but this environment is "shaped" by them. Thus, disregarding power structures, as Oliveira (2007) accuses, would be too naïve for those who lived in a caste society like Sen. Social opportunities are important for the way people conduct their private lives and for greater participation in the public sphere, whether in the economy, in the community or in politics. In this approach, the collective interest is not the sum of individual interests, because these are not necessarily commensurable. In this type of society [proposed by Sen] "one does not begin the argument by asking what a perfectly just society would look like, but rather what injustices could be removed, even if they can be deliberated in a contract" (MARIN; QUINTANA, 2010, p. 10).

Here the intention is not to scrutinize the rich debate on justice preached by Sen, especially in recent years. However, some points are highlighted that will help us in the analysis of the cistern policy. For the author, public choices go through social discussion, however, attention must be paid to the freedom of individuals to position themselves in the public debate. For this, critical and self-reflective individuals are required (KERSTENETZKY, 2000; MARIN; QUINTANA, 2010). Well-being within the conception of training consists of a set of real opportunities, influenced by social and individual deprivations. These are real workings if they are within what the person and the community value.

Despite recognizing these limitations in public debate, the author emphasizes the need for it, because choices go through moral dilemmas and establishing a priori rules can reinforce injustices and exclusions. Sen (2012) denies both the satisfaction-maximizing and self-interested rationality of utilitarian and marginalist theories, as well as Rawls' contractual ultrarationalism. For him, rationality involves accepting the existence of conflicts of values. This will be contrary to Rawls' proposal, according to which those individuals in the worst situation should always be the first to be served. To this end, it exemplifies the gender difference in longevity already proven by science. Would it be fair, given that men tend to live fewer years than women, to reduce access to health care for women in order to equalize the expected years of life? That is, even issues that seem morally unquestionable, such as the unconditional benefit of those in the worst situation, are subject to moral dilemmas.

These moral dilemmas are fought not only seeking self-interest, but seeking the good of others, either by commitment or by sympathy. Commitments are constituted from affective bonds, which often pass through group and class identities, that is, when people identify with others. However, we cannot forget the need for freedom in these choices and the existence of power structures or other mitigating contingencies that can hinder the participation of marginalized groups, not only by "oppressor groups", but also by too oppressed who do not perceive themselves as such (adaptive preference<sup>6</sup>). Thus, in addition to impairments generated by identification, it is imperative to consider the processes of social choice and the formation of public reasoning through public policies and

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<sup>6</sup> The adaptive preference to which Sen (2008) refers is the condition in which the individual has been in a situation of such intense deprivation for so long, including generations, that he cannot discern how deprived he is of having a good life and what could be done to change his situation. As an example, the author presents the situation of the Afghan woman who suffers physical violence from her husband for having burned the rice and does not identify this as a situation of humiliation and pain, as she witnessed the same happening to her mother, grandmother. In these contexts, and only in these, Sen (2008) argues that not only the perception of the people affected by the development proposals should be considered, due to their limitation in the context of severe deprivation.





behavioral norms. To this end, Sen (2012) returns to Smith's impartial spectator to argue that not only those who are part of the social contract should participate in the critical debate about the values involved in it, since these people are not always exercising their voices freely.

### **Public policies and the participation of the population involved as constitutive and instrumental freedom**

In addition to characterizing the population that is the focus of public policy and knowing its needs, it is necessary that it be involved in the process of designing, implementing and supervising State interventions. Considering CA, this participation consists of a constitutive freedom, as it allows the individual and the community an empowerment and a feeling of important listening, as well as an instrumental freedom, given that a population and individuals who are involved in the process of public policies tend to demand more efficiency and meeting their demands from the State.

Thus, considering CA, the participation of the conception of public policy is fundamental for the expansion of freedom. In poor communities, freedom often passes through the action of the State. According to Sen (2008), even when public policy promotes freedom, such as public health promotion policies that combat preventable disease transmitters, freedom is not compromised, on the contrary. But, for people to actually participate in this process, they need to be actively inserted from conception.

Regarding the participation and listening of the poor in policies to combat poverty, Pinzani (2011) insists that most measures that seek to address poverty are taken based on statistical, quantitative or macroeconomic data. "The poor are, in short, considered a mere object of public policies, not a subject of politics, a political subject properly speaking" (PINZANI, 2011, p. 84). From this, there is disinterest, neglect, but also maintenance of power. By "granting" protagonism to communities, there is a loss of power to the already established political structures, and this can be one of the main factors that prevent this transfer of power.

Public policies formed and inspected with the participation of the community tend to meet the real demands of the population and be more efficient, as the involvement of this population requires a greater and more committed attitude from the State. However, one cannot disregard the game of interests that this involvement implies. Locally, some groups or even leaders may seek particular benefits, forgetting the claims of the majority, or the majority may oppress internally marginalized groups.

In this regard, Sen (1985) rescues, once again, the figure of Smith's impartial observer, which allows us to think of a formulation of public policy that loses its technocratic centrality, with the agent, who is the target of the intervention, being the protagonist; But technical analysis does not cease to exist, it only gains a smaller space. For Pinzani (2011), the poor are not listened to because they know how to better describe their needs, often this does not even correspond to reality, but for an ethical reason, as it links the importance of the possibility of talking about their situation and how valuable this is for the population. When they are not heard, there is a double loss: that of not seeing their needs detected and that of the humiliation of not being heard. "The linguistic dimension is fundamental for the affirmation of human dignity, since the latter is based not on an innate quality of the human being, but on the recognition of the right of people to participate in a discourse of justification of the states of affairs that affect their lives, when such states depend on human action" (PINZANI, 2011, p. 93).

Therefore, training courses now offer a theoretical instrument conducive to "listening" to the population that is the focus of public policy, both to translate into training statements about their lives, expectations and perspectives, and to understand the limits inherent to discourse, typical of a deprivation of training (PINZANI, 2011).

## INEQUALITY AND PUBLIC POLICIES

Ribeiro and Menezes (2008) highlight the problem of inequality, stating that this and not poverty is characterized as the distinctive aspect of Brazilian society. Barros et al (2001) find in the inequality of income and social and economic opportunities the main structure for the maintenance of poverty in a country with a high Gross Domestic Product (GDP), but with a large contingent of poor people.

When we try to think about the development of Brazil, inequality emerges as a great malady of society and in rural areas it deserves to be highlighted: according to Oxfam (2019), less than 1% of rural landowners concentrate more than half of the country's land. The Human Development Report (RDH, 2005) points out that inequalities reflect complex hierarchies of advantages and disadvantages, transmitted between generations and supported by public policies. When we analyze the difference in benefits such as agricultural credit<sup>7</sup>, we clearly perceive a tendency to support agribusiness, which is sustained in large territorial extensions and in support of the specialization of production.

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<sup>7</sup> The 2023/24 Crop Plan financed R\$ 364.22 billion for employer agriculture, while Pronaf 2023/24, intended to finance family farming, was R\$ 71.6 billion.

Fonte dados Plano Safra: <https://www.gov.br/agricultura/pt-br/assuntos/noticias/presidente-anuncia-plano-safra-2023-2024>.

This inequality is intrinsically wrong because it violates basic precepts of social justice (RDH, 2005). It tends to stiffen established social structures, create local powers, make excluded populations economically, socially and politically vulnerable, and increase poverty. Policies to combat poverty in Brazil cannot neglect that inequality must be the center of proposals, since combating poverty involves reducing inequality. It is not an egalitarian proposal, but the disparities between the rich and poor, or between the haves and have-nots, could not be so pronounced when we think of a just society. For the year 2024, the federal government has allocated R\$ 540 million for the construction of cisterns in the semi-arid region and in the Amazon<sup>8</sup>. The cistern program became inoperative after the impeachment of President Dilma and the Bolsonaro government, returning in the Lula 3 government, with the goal of building 221 thousand cisterns by 2026 (BRASIL, 2024).

An analysis only of resources and access already allows us to verify inequality in rural areas, however, in addition to this disparity, the aspects linked to the realization of resources and opportunities in a better life, that is, the freedom to be and act according to what is considered worthy, can differ markedly between the poor and the non-poor. With CA we also seek to propose a new evaluative space for inequalities, that of freedom with its procedural and opportunity aspect. With regard to access to water, there is a wealth of literature and empirical work that account for the power of bossism over populations that depend on the permission of landowners to access the resource.

Furtado (1999) already pointed out the problems generated not only in the social and political structures arising from the concentration of resources in Brazil, including in the productive structure unleashed and with low technological incorporation. However, the defense of a reduction in inequality in the Senian approach is not consequentialist, that is, it has intrinsic value and should be sought, above any other derivative benefit, for this aspect, because it is unfair to the oppressed and the excluded.

## **NOTES ON DROUGHT AS A SOCIOECONOMIC PHENOMENON AND THE CISTERN POLICY**

Furtado (1967) characterizes the drought of the semi-arid Northeast as a natural phenomenon with serious economic and social consequences, whose effect was concentrated on subsistence agriculture. He defines this phenomenon as "a crisis of production determined by physical factors" (FURTADO, 1967, p. 10). It is therefore

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Source: Pronaf data: <https://www.conab.gov.br/ultimas-noticias/5052-governo-lanca-plano-safra-da-agricultura-familiar-com-reducao-de-juros-para-producao-de-alimentos>.

<sup>8</sup> BRAZIL, 2024. <https://www.gov.br/mds/pt-br/noticias-e-conteudos/desenvolvimento-social/noticias-desenvolvimento-social/programa-cisternas-investe-r-570-milhoes-em-2024>.

necessary to understand the nature of the drought and its economic, social and political consequences, in order to achieve lasting solutions to the problem. Also according to Furtado, the traditional policies against droughts – assistance spending and the construction of dams – did not change the course of events, nor did they attack the fundamental data of the problem.

In the framework under analysis, Furtado may have been a pioneer in seeking to link physical (environmental) factors to socioeconomic factors and the concept of drought. In other words, drought was seen by him as a complex phenomenon, the study of which required certain previous conceptual distinctions. In fact, when one begins to study drought, one has to distinguish between "drought" and "drought", terms that popularly refer to the same thing. Drought is not enough to characterize a drought. Insufficient rainfall is a necessary condition, but not sufficient for the phenomenon of droughts. Even if the absence of rainfall is insufficient to demarcate a drought, the problem of droughts will always be a problem linked to water (LEITE; LEITE, 1984). At the same time, it is interesting to note, in the specialized bibliography, that an environmental phenomenon only becomes a calamity when it encounters a vulnerable population.

For Leite and Leite (1984), droughts bring with them hunger, the disappearance of native seed species, the loss of patrimony, herds, migration, lack of perspective, physical and mental illnesses and helplessness. The more systematic the phenomenon, the more difficult it will be for people to rebalance themselves and they will tend to be, with each new drought, more fragile, vulnerable and poorer. According to Duarte (2004), knowledge of how poor families prepare for the occurrence of drought is important to understand the economic limits of drought and to formulate policies to reduce vulnerability. In addition to the loss of crops, farmers often have to travel to fetch water, an activity that often burdens women. The loss of water quality for drinking and cooking also "hurts" the dignity of these farmers. As short-term measures, rural extensions that support farmers and measures such as the opening of wells, cisterns, drinking fountains and the supply of water via water trucks to those most affected and with fewer resources are essential. In view of this, access to cisterns is essential in the rural area of the semi-arid Northeast.

To fully understand the need for the use of cisterns in the Northeast, it is crucial to enter into the complex reality of the semi-arid region, which, according to 2023 data from the National Institute of the Semi-Arid (INSA) (2023), covers 1,262 municipalities in the nine states of the Northeast region, in addition to the north of Minas Gerais, representing 12% of the national territory and is inhabited by approximately 28 million people, divided between urban (62%) and rural (38%) areas.

In this context, the Articulation of the Brazilian Semi-Arid Region (ASA) emerged, a network composed of more than 700 civil society organizations in the Northeast, which rejected the vision of overcoming drought based on large works, proposing the articulation and involvement of families in the construction of simple, low-cost solutions with great social effect, seeking coexistence with the semi-arid region (COSTA; DIAS, 2013).

## MILLION CISTERNS PROGRAM

According to Costa and Dias (2013), the construction of the 1 million Cisterns Program (P1MC) as a public policy had three important moments: i) the first process took place during COP-3 in 1999, when the newly founded ASA proposed the construction of one million cisterns, marking a significant advance in the government agenda. The experimental project started in 2000, with resources from the Ministry of the Environment (MMA), systematized experiments and built 500 experimental units; ii) The second moment occurred after the conclusion of the experimental project, when ASA signed a second project with the National Water Agency (ANA) for the construction of 13 thousand cisterns; iii) the third milestone occurred at the beginning of the Lula government, with the creation of a specific item in the General Budget of the Union for cisterns (CASTRO, 2021). The implementation of the P1MC had the participation of several entities, such as the Ministry of Social Development (MDS), the 1 Million Cisterns Program Association (AP1MC) linked to ASA, and civil society organizations (CSOs).

Pereira (2016) points out that, in contrast to decision-making in government offices, the first initiatives for the design of the P1MC were taken by civil society organizations. Despite the recognition of government as a significant agent, there was simultaneous consideration of its limits; A fundamental characteristic of the process of creating the program was the absence of a single decision-making center, configuring itself as a collective process of shared decisions, based on previous experiences and practices of the organizations. ASA, through management units, one central and sixty-four micro-regions, played a central role in the administration of the P1MC, working on the implementation and execution of the program. In the municipalities where the P1MC was implemented, municipal commissions were formed, composed of representatives of civil society organizations. Of these organizations, one was chosen as the municipal management unit. The role of these commissions was crucial, involving the selection of communities and families participating in the program, the mobilization and organization of training courses, as well as the supervision and monitoring of the execution of the program by the municipal management unit (LUNA, 2011).

In addition to management and implementation, the financing of the program was a key piece, with resources coming mainly from the federal government. These resources were complemented by contributions from other organizations, such as the Brazilian Federation of Banks (Febraban). It is relevant to note that the program established the requirement of counterparts by organizations affiliated to ASA, reinforcing the importance of partnerships and commitment for the continued success of the program. The combination of strict selection criteria and an effective organizational structure has created a solid foundation for the implementation and sustainability of the P1MC (LUNA, 2011).

The analysis of Santos et al. (2009) in relation to the P1MC reinforces its nature as an initiative aimed at social training and mobilization, aiming at living with drought in the semi-arid region. The cistern, being a simple and easily replicable technology, found rapid dissemination in the Brazilian semi-arid region. It is worth noting that the innovative proposal of plate cisterns was presented by Manoel Apolônio (Nel) in 1955, marking a revolution in rainwater harvesting in the region. When migrating to São Paulo in search of opportunities, Nel brought with him the inspiration to build cylindrical cisterns from precast plates, a faster and more durable alternative compared to traditional cisterns. Initial success drove the spread of this innovative model, transforming water practices in local communities and neighboring municipalities, including with financial support from banks. Nel's legacy continues to positively influence rainwater harvesting in the Brazilian semi-arid region, highlighting the importance of technological innovation to address water challenges (PEREIRA, 2016).

Over the more than six decades since its inception, the plate cistern has undergone a gradual transformation, becoming a fluid technology. This approach characterizes it as a dynamic object, capable of changing its form, devoid of strict boundaries and that does not impose itself, but seeks to serve, adapt, be flexible and responsive.

The plate cistern, configured in its standard form as a circular structure with a radius of about 2 meters, built over a hole adjustable according to the terrain, has the capacity to store up to 16 thousand liters of water. Its location close to the house, connected to the roof by a gutter, allows for the systematic collection of rainwater. The management of the system includes the disposal of water from the first rainfall for cleaning, with subsequent rains being stored in the cistern to supply consumption during the dry months. This integrated framework offers an efficient and sustainable solution for communities to address water challenges in the semi-arid region (COSTA; DIAS, 2013; PEREIRA, 2016).

It should be noted that water use efficiency, highlighted by the Ministry of Social Development (MDS), has become a crucial pillar for the success of the P1MC. A single



16,000-liter cistern has the capacity to meet the needs of a family of up to five or six people for eight months, covering the critical period of drought in the semi-arid Northeast. This success is not limited only to the right choice of technology used, but also stems from the awareness promoted by ASA. Over time, ASA has emphasized and continues to emphasize the importance of parsimonious management of water resources to ensure the sustainability and performance of the program. This approach not only optimizes water use, but also strengthens the resilience of communities in the face of climate adversities in the region (COSTA; DIAS, 2013; PEREIRA, 2016).

In addition, the judicious approach to the selection of communities and families, as outlined by Luna (2011), stands out as a crucial element for the functioning and direction of the program. These strict criteria cover indicators such as the human development index, the number of children and adolescents at risk, the infant mortality rate, as well as specific aspects related to the family context, such as the presence of female heads of household, adults aged 65 and over, and the existence of physical or mental disabilities. This approach aligns with the inclusive nature of the program, focusing efforts on the most vulnerable and needy communities.

Since 2003, the P1MC has stood out for the active participation of organizations, redefining alliances and presenting a new paradigm of public policy for coexistence with the semi-arid region. Several public policies to combat rural poverty have been strengthened since then, covering sectors such as health, education, basic sanitation, rural electrification, access to drinking water, and programs to support family farming. Among these initiatives, the National Program for the Strengthening of Family Agriculture (PRONAF), the Semi-arid PRONAF, the Crop Guarantee Program, the Food Acquisition Program (PAA), the National School Feeding Program (PNAE), as well as territorial development programs and the Dom Helder Câmara Project (ARSKY, 2020) stand out.

In this context, it is worth mentioning that in July 2011, the federal government launched the Water for All Program as part of the Brazil Without Poverty Plan (PBSM), aiming to universalize access to water in rural areas of the semi-arid region by the end of 2014. To meet the goal of 750 thousand families with precarious access to water, the cistern was chosen as the main technology. In order to achieve the goal in four years, it was decided to distribute polyethylene plastic cisterns, coordinated by the Ministry of National Integration (MI). However, this decision faced immediate opposition from ASA, which pointed out that the plastic cistern did not adapt to the characteristics of the semi-arid region and did not promote a process of training and mobilization to live with drought. While the plate cistern involved family participation in the construction and training in water

resources management, the plastic cistern was prefabricated and installed by companies, reproducing an approach that centralized resources. In addition, the MI did not foresee that the polyethylene cisterns would suffer deformations, sinkings and deterioration in several states where they were distributed due to the intense heat of the hinterlands, leading to the need to replace many of them. Plastic cisterns have become the subject of dispute between ASA and the federal government, with the technology facing criticism for its inadequacy and lack of resistance to the environmental conditions of the semi-arid region, although this issue has not been officially recognized by the government (PEREIRA, 2016).

In summary, under the management of President Lula, new programs and actions were implemented, highlighting the strengthening of the P1MC, which aimed to promote water security and fight hunger in the Brazilian semi-arid region. The strategic partnership between the government and ASA strengthened the execution of the P1MC. The reallocation of resources from the Extraordinary Ministry of Food Security and Fight against Hunger (MESA) to the P1MC, later consolidated in the Ministry of Social Development and Fight against Drought (MDS), was important for its continuity. The gradual implementation of the P1MC allowed local adaptability, progressively reaching underserved communities. This integrated and strategic approach reveals how the change of government in 2003 positively influenced the implementation and scale of the P1MC, becoming an example of facing the challenges in the Brazilian semi-arid region.

Moreover, as the government progressively supported the ASA initiative, the success and inclusive approach of the P1MC were instrumental in underpinning a more comprehensive and structured national policy. As a result of this growing support, the National Program to Support Rainwater Harvesting and Other Social Technologies (Cisterns Program) was established in 2003, and was only properly regulated in 2013. The formal creation of the Cisterns Program in 2013 was supported by specific legislation, established by Law No. 12,873/2013 and Decree No. 8,038/2013. Although there had already been budgetary actions aimed at partnerships with ASA and agreements with state and municipal governments since 2003, there was no specific legislation that clearly outlined these initiatives. The Cisterns Program represented a significant milestone in the government's response to water scarcity in the semi-arid region, expanding the benefits of water abstraction to a wider variety of communities across the country (PEREIRA, 2016).

It is noteworthy that the Cisterns Program, aimed at low-income rural families facing the effects of drought or regular lack of water, offered several types of cisterns, each with a specific purpose. The family cistern for drinking water, with a capacity of 16 thousand liters, was installed next to the residences. On the other hand, the school cistern, intended for

schools in rural areas, had a storage capacity of 52 thousand liters of drinking water. In addition, the benefited families had the option of purchasing water cisterns for production, with a capacity of 52 thousand liters, which could be for individual or collective use. These initiatives aimed to mitigate the challenges faced by vulnerable communities in the face of water scarcity, contributing to the promotion of more dignified and sustainable living conditions (CASTRO, 2021).

It is also worth noting that over the years, ASA has expanded its initiatives, introducing new programs to address specific challenges in the semi-arid region. In 2007, ASA established the One Earth Two Waters Program (P1+2), aiming to promote food and nutritional security, and income generation for farming families through access to water for food production. The program adopted simple technologies, such as a cistern-sidewalk, cistern-runoff, underground dam, barreiro-trench, barraginha, stone tank and popular water pump. Implemented in collaboration with the Ministry of Social Development (MDS) and other organizations, P1+2 covered the entire semi-arid region, resulting in the construction of 87,381 technologies for family use and 1,318 for community use by March 2016. In addition, ASA developed the Cisterns in Schools Project, officially started in 2010, providing 52,000-liter cisterns for rural schools in the semi-arid region, with 3,309 built by March 2016. Additionally, in 2015, ASA launched the Training and Social Mobilization Program for Coexistence with the Semi-Arid Region: Agrobiodiversity Management - Seeds of the Semi-Arid Region, aimed at rescuing and strengthening the cultivation of native seeds in the region (PEREIRA, 2016). In other words, in terms of access to water, there was an expansion of programs aimed at coexistence with the semi-arid region.

## **EVALUATION OF PUBLIC POLICIES CONSIDERING THE EXPANSION OF CAPACITIES AND THE ANALYSIS OF THE CISTERN POLICY**

A public policy needs to define a target audience and goals to be achieved. Pinzani (2011) distinguishes the perspective of the specialist who establishes objective, quantitative criteria and the researcher who seeks to define the poor based on interviews. According to the author, these two methods should complement each other, starting from a group "detected" with macro data and that would be particularized through closer work, before elaborating the policy itself, individualizing the elements and needs.

As the evaluative space is formed by capacities, which are the capacities and skills that represent the chances and opportunities that individuals have to perform the functions, what activities or states of affairs, the degree of freedom, what led individuals to a certain state or act, is considered important. An example given by Sen (1999a) that illustrates well

the difference in degrees of freedom is the one that relates fasting for religious reasons and fasting for food deprivation. In both cases, individuals feel hungry, but the freedom of the two to go through this state is very different.

Based on CA, it is argued that it is from the public debate that the valued functioning emerges and is rethought. The ordering of these functions does not need to be complete, and it is possible to achieve the objective by informing the best option that was possible to obtain by a deliberative consensus of the people involved in the evaluation, even if it is not the "best" option. This public debate has intrinsic and instrumental importance.

Sen's normative approach to public action reinforces the need to consider two dimensions to estimate the advantages of people, well differentiated by Vita (1999): agency and well-being. The analysis of public policies will be qualitative, with the analysis of the content of cistern policies, through their history and conception, carried out by other studies. This content will be evaluated by the descriptive-interpretative technique, which seeks to link the content of the programs with the suggestion of the theory of training. The intention is to investigate public policies that directly aim to serve those affected by the cistern policy in the Brazilian Northeast. The policies proposed by the Union, and which have as their goal the creation of cisterns, are analyzed, considering the following aspects:

- i. The condition of agent: refers to the realization of objectives and values that the person recognizes as important, not necessarily linked to his self-interest. The condition of agent is far from welfare, but this can be the first step that a person needs to "take the reins" of his life. For Sen (2008; 2005; 1999a; 1998), with adequate social opportunities, individuals build their destinies and help each other. Thus, rationality is beyond self-interest; It involves sympathy and commitment. Sympathy links individual well-being to collective well-being (I am sad to see a subject going hungry, so his suffering also decreases my well-being). The commitment, on the other hand, does not provide for a relationship with well-being and is already focused on a judgment of justice, for moral principles. It is necessary to verify the involvement of people, whether they were consulted and participated in the proposition of public policies.
- ii. Internal inconsistency of choice: Sen (1999b) proposes that not only objectives, but choices should be compared with each other. That is, if options for people in the proposal of public policy or public action. Rationality as internal consistency has to do with the choices people make. The economy considers data, statistics and numbers and not values and opportunities. People have different values and opportunities, which makes the same good or the same amount of money turn

into different ends for different people. According to Sen (1999b, p. 30), "[...] The very idea of purely internal consistency is not convincing, because what we consider coherent in a set of observed choices must depend on the interpretation of these choices and on some characteristics external to the choice itself (for example, the nature of our preferences, goals, values, motivations)".

- iii. Interpersonal comparison: What people want is linked to reality and this is more difficult for some. That is, whether personal differences are considered in the proposals or whether it is consequentialist.
- iv. Incommensurability: This is the search for the consideration of moral pluralism. "There is no way to compare distributive portions with reference to incommensurable conceptions of what it is that makes human life worth living" (VITA, 1999, p. 2). However, what can be seen as a serious limitation is a more realistic proposition: granting moral value to something is a much more reflexive act than desiring something. With this, it is intended to analyze the moral content of the proposed public policy.

## THE ANALYSIS OF THE CISTERN POLICY AS A MEANS TO EXPAND CAPACITIES

When analyzing the phenomenon of drought in the semi-arid Northeast, considering its socioeconomic consequences, we have that living with the semi-arid region is a fundamental training group when seeking the expansion of positive freedom, autonomy, to live a dignified life for the population of the hinterland. In the capacitation group we can have several other functions such as production conditions, access to land, health conditions, education conditions, political freedom. In short, the coexistence with the semi-arid region goes far beyond the relationship with water.

However, in this training group living with the semi-arid region, access to water is an essential function, which, in our analysis, considering the bibliography that addresses the use and manipulation of the population based on the restriction of access to land and water in this rich territory, is fully realized when there is access to quality water for drinking and for domestic and animal use autonomously, without depending on the permission of other people for collection and consumption. In view of this and considering the history of the cistern policy, we analyzed this public policy in terms of its effectiveness in promoting freedom of operation and access to water for the benefited population.

Regarding the condition of agent, or agency, even though it requires empirical research that captures people's perception of the implementation of sidewalk cisterns, the way in which the policy was conceived, based on the organization of civil society,



considering local demands and the participation of the population from the elaboration of proposals to the construction of cisterns, There is a tendency towards the expansion of freedom over the condition of agency. However, when the distribution of plastic cisterns was implemented, there was a loss in terms of water quality and the involvement of the population, which was previously part of the construction of the cisterns. The most aggravating thing is that this type of cistern was not desired by the people who benefited. Thus, although it is known that empirical research is important for the analysis of the condition of agent, considering plate cisterns we verify an expansion of freedom for this condition, which does not fully occur with the plastic cistern.

In view of this difference between plate cisterns and plastic cisterns, we analyzed the internal inconsistency of choice, and it is verified that when implementing plastic cisterns, the freedom of choice of the beneficiaries was not respected, even though they were no longer at the mercy of the excesses of those who dominate the lands with access to water; The water stored in the plastic cistern was of poor quality and was not in the way they consider best for their life. Regarding interpersonal comparison, by prioritizing homes with the elderly, women and children, in addition to considering the difficulty of access to water sources, the cistern policy fulfills a condition for the realization of the functioning of access to water.

Finally, considering the incommensurability, access to water in satisfactory quantity and quality is a basic human right, along with the right to food, however the policies of access to water based on large reservoirs, such as dams and water tanks, concentrated power. These constructions, even if they were carried out by public policies, ended up being privately co-opted. The cistern policy removes this dominance, allowing families to manage consumption without depending on favors or permissions. Thus, we consider the policy of plate cisterns as an important means for the realization of the functioning of the water system. Plastic cisterns, on the other hand, end up weakening this achievement.

## **FINAL CONSIDERATIONS**

The analysis of public policies considering development as freedom, the expansion of capacities, seeks to capture whether in fact the proposed measures are means for a better life for people and whether they are heard in the process of formulating and implementing public policies. When we think about the context of drought, access to water in satisfactory quality and quantity seems to be an unquestionable resource to ensure a good life for the population. In fact, there is no doubt about it. However, the way this policy is thought out and implemented is very important for people to have this freedom.





Policies that focused on large reservoirs ended up, in many cases, diverting a public benefit to a private use that represented the manipulation of the population that depended on access to water dominated by local bosses. The cistern policy ends up being an important means, we say fundamental, for the realization of the functioning of the water system. In this work we do not have empirical research, which will be carried out in a later study. We are aware that the condition of agent needs to be verified empirically, trying to capture whether people felt contemplated with regard to access and quality of water through the cistern policy, but here, considering the history of the creation of the policy as an important step for this analysis, we affirm that the condition of agency is expanded in the cistern policy. However, we found that this freedom is more expanded for the policy of plate cisterns compared to plastic cisterns.

It should be noted that the use of cisterns transcends the simple construction of cisterns. A valuable lesson from the program emphasizes that the processes of building social technology often exert more significant effects than the final products obtained. Empowerment and social inclusion do not result only from the installation of cisterns, but are, in fact, intrinsic results of the very process of construction of these artifacts. In addition, people relate to the environment not only through the provision of food or inputs, but have a relationship of existence, tradition, culture and a guarantee of well-being with it.

Thus, environmental phenomena, such as drought, tend to affect various dimensions of the lives of rural producer families. Therefore, policies to combat poverty should consider the relationship that people have with the environment, seeking to strengthen their environmental access, since this expands their quality of life. They should also consider that these relationships are dynamic and should be confronted with the target audience of public policy. Therefore, the training group living with the semi-arid region is far beyond the functioning of the region. Fulfilling the objective of this research, we found that the cistern policy helps to promote human development as an expansion of freedom.



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