
Drought and public policies in the Brazilian semi-arid: an timely debate about the binomy fighting the drought x livelihood with the semi-arid

Sequía y políticas públicas en el semiárido brasileño: un debate oportuno sobre el binomio combate a la sequía x convivencia con el semiárido

Secas e políticas públicas no semiárido brasileiro: Um debate oportuno acerca do binômio combate a seca X convivência Com o semiárido

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Abstract

The article aims to discuss public policies developed in the Brazilian semi-arid region, considering the paradigm shift involved in the duality of combating drought and living with the semi-arid region. Bibliography and specialized websites were consulted with information related to public policies aimed at solving problems associated with water scarcity and implemented in the Brazilian semi-arid region at different periods. Good examples can be seen in this vast territory that show a development based on sustainable principles and successful measures adopted in the context of coexistence with the semi-arid region. Political and economic interests cannot override the adoption of measures to coexist with the semi-arid region. This is a paradigm shift, but it represents a great challenge.

Keywords: Public policies; Semi-arid; Drought.

Resumen

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El artículo tiene como objetivo discutir las políticas públicas desarrolladas en la región semiárida brasileña, considerando el cambio de paradigma envuelto en la dualidad de combatir la sequía y convivir con el semiárido. Se consultaron bibliografías y sitios web especializados con informaciones relacionadas con políticas públicas orientadas a resolver problemas asociados a la escasez de agua e implementadas en la región semiárida brasileña en diferentes períodos. En este vasto territorio se pueden ver buenos ejemplos que muestran un desarrollo basado en principios sostenibles y medidas exitosas adoptadas en el contexto de la convivencia con el semiárido. Los intereses políticos y económicos no se pueden superponer a la adopción de medidas para convivir con la región semiárida. Este es un cambio de paradigma, pero representa un gran desafío.

Palabras clave: Políticas Públicas, Semiárido, Sequía

Resumo

O artigo objetiva discutir políticas públicas desenvolvidas no semiárido brasileiro, considerando a mudança de paradigma envolta na dualidade de combate à seca e convivência com o semiárido. Realizaram-se consultas à bibliografia e sites especializados com informações relacionadas às políticas públicas voltadas à resolução de problemas associados à escassez hídrica e implementadas no semiárido brasileiro em períodos distintos. É perceptível neste vasto território bons exemplos que evidenciam um desenvolvimento pautado em princípios sustentáveis e medidas exitosas adotadas no âmbito da convivência com o semiárido. Os interesses políticos e econômicos não podem se sobrepôr à adoção de medidas de convivência com o semiárido. Trata-se de uma mudança de paradigma, mas que representa um grande desafio.

Palavras-chave: Políticas Públicas, Semiárido, Seca

Introdução

When discussing the water question in the Brazilian Northeast, we faced an intriguing question: would the Semi-arid be only drought, misery, exhaustion and sadness? The answer is no. In fact, the media, for a long time, relied on affirmative statements of this nature and on so many other pejorative characteristics attributed to the Semi-arid of the Northeast, where they ended up favoring the creation of the so-called "Northeast Issue".

However, in this context, the following question arises: would this thinking constructed from the misappropriation of the benefits derived from vertical public policies, proposed for this Region as a whole, and who have been captured by local agrarian elites for their own benefit or by relatives and electoral political supporters, thereby guaranteeing the power structure and privileges of these groups to the detriment of the people at large, expropriated on its basis the natural resources necessary for its subsistence, namely land and water?

In this sense, we highlight that the Brazilian Semi-arid is one of the semi-arid regions of the globe that has the largest accumulated rainfall. However, the problem of water scarcity lies in a set of factors that include since the water distribution in the territory and why not highlight the lack of public policies that can store the waters from the precipitated volume. In addition, it should be noted that the high photoperiod, intense intra-annual insolation, the predominance of the crystalline base (which makes it difficult to infiltrate the precipitated volume), in addition to the high intra-rainfall variability annual and interannual, they end up interfering in the surface storage and water deficit of the region. However, it is still necessary to reflect on this deterministic condition that the semi-arid is dry and that, for this reason, the socioeconomic scenario should remain as it is.

As we already know, the political, social and economic processes that the Northeast experienced between the nineteenth and twentieth centuries caused a whole dismantling in the more egalitarian development of the region, as Francisco de Oliveira (2008) mentions in his work "Elegy for a **Re(li)gião**".

Thus, this article intends to discuss this duality that involves the fight against drought and coexistence with the semi-arid, in order to unveil how this movement of paradigm change took place, in addition to considering the distinct historical moments and their influences in the implementation of public policies and, possibly, the role that the dominant local and national elites ended up exerting to promote this uneven and scarcity scenario.

In order to contemplate such research, consultations were carried out with works to specialized sites, identifying (whenever possible) public policies developed in different historical periods. This information was tabulated and analyzed below.

Regional development: structuring public policies

From the end of the 19th century and throughout the 20th century, the issues surrounding the drought problem became visible, that is, the issues related to the "regional problem" and government assistance policies, such as the distribution of basic food items, construction of weirs and dams, among other water storage mechanisms, began to be discussed.

Even if such measures are initially seen as alternatives to circumvent the effects of water scarcity, they also reinforce the centralisation of power and allow financial resources to be diverted to large landowners. This group of shares ended up being called the "drought industry".

In any case, the construction of a pejorative and prejudiced ideal regarding the Northeastern gained strength, because what was propagated was a connotation of poverty/misery/disgrace.

In this perspective, Ferreira (1993) discusses the political and economic sense that the "drought industry" gained from, for example, the droughts of 1877/1879, 1888/1889, 1903/1904. Thus, according to the same author, three questions become evident within the national context of drought: the economic collapse in the region, reinforced by periods of drought, the interest of the state politics prioritizing some political groups and the other guided in the political interest of collecting goods for the Northeast. This territory is characterized by presenting itself as a region of extreme climatic conditions, the known binomial drought, with the effects caused by drought being one of the largest social liabilities in the country (TRAVASSOS et al., 2013).

The problem surrounding the droughts in Brazil is linked to the political debate from 1877, when a great triennial drought lasted until 1879, together with the first works of the scientific commissions of exploration, this idealized between the years 1859 to 1863, where deaths and losses occurred in farming and livestock farming, making room for the facets of the "Dry Industry" (ALMEIDA, 2013).

The Inspectorate of Works Against Droughts (IOCS), institutionalized in 1909, citing one of its actions in the Northeast region, guaranteed that:

[...] always sought to achieve the ills considered directly from the prolonged droughts - the lack of water, the high mortality rate, emigration, the economic crisis - through engineering works, without taking into account that these evils are only aggravated by the lack of rain, and that the situation of poverty and crisis would exist before the periods of drought (FERREIRA, 1993, p. 127).

The IOCS has even been modified twice. Initially, in 1919, when it included the term "Federal" in its acronym, named, from then on, as the Federal Inspectorate of Works Against Droughts (IFOCS) and, in 1945, when it became the National Department of Works Against Droughts (DNOCS).

Also according to Ferreira (1993), the IOCS had a primary function of benefiting mainly large landowners. The resources for the construction of weirs, that is, those that should help the most needy, were diverted to the landowners and, in this way, the centralization of power became stronger and stronger, while those backwoods who depended more on such resources became increasingly needy.

This problem is evident in the following decades, with an increase in regional inequalities. Costa (2003), states that between the years 1930-1964:

[...] the contrast between the developed Center-South and the late Northeast was establishing and forcing the Planning policy to allocate "special attention" to the region. The basic point for regional development policy was drought. Drought became the ideological basis for this. The debate on the "Northeast Issue" and specifically on drought, in the context of the ideas of Regional Planning, forged structural changes in the Northeast (COSTA, 2003, p. 65).

In this sense, departments such as the DNOCS, agencies such as the Banco do Nordeste (BNB) and municipalities such as the Superintendência de Desenvolvimento do Nordeste (SUDENE), financed the works of the Federal Government in the northeastern region. While the DNOCS was responsible for the construction of weirs and wells, with the main purpose of circumventing the problem of scarcity in the period of drought, the BNB acted mainly in the granting of individual credit and support to companies, helping in the development of the region. In the late 1950s, SUDENE planned and coordinated industrial development (COSTA, 2003).

Gomes (1998) also evaluates how social understanding is tied to the phenomenon of drought. Despite the physical-natural characteristics that make the Northeast a region prone to the occurrence of droughts, the cultural factor also exerts influence, according to the author. Thus, it states that drought is also a cultural problem. That is, for this phenomenon (drought) to gain so much visibility, there is a whole logistics of work, distribution of resources and even social relations.

Even, drought still establishes an intense "symbolic trade", where rain transforms into abundance and the irregularity or absence of it means deprivation, scarcity (GOMES, 1998). Orality plays a key role in the horrors of drought, often seeking to rely on faith to understand/justify the events that drought causes.

The social representations of drought form an organized set of arguments that somehow satisfy the need and answers of the social subjects who come across the phenomenon, "and, in this encounter, venture, imagine, represent explanatory forms with which they interact with other subjects, and position themselves in the dry society (GOMES, 1998, p. 84).

Here it is possible to notice that the reasons/justifications that seek to unveil the drought, sometimes rely on abstractions, where the figure of the divine assumes a relevant role in the imaginary of the Seventh. However, regardless of the drought being associated with the hydraulic-institutional character or linked to political and

economic issues, it assumes several meanings, making it a kind of symbol, which can be interpreted in several ways.

While some would choose to understand drought as a "divine punishment", where "God" would be responsible for the occurrence of such a phenomenon, others may believe that such an occurrence would be better understood from the dynamics of nature (*natura*), relating it to the hydraulic phenomenon-climatological and complex climatic system that would explain the scarcity of rain in a given period. However, there is also the aspect that, without wishing to belittle the previous ones, prefer to admit drought as a social phenomenon, since it has a strong connection with the development policies of the region.

Relying on such symbologies, Gomes (1998) states that God, Nature and Man, or rather Religion, Nature and Society, would be the words that would best synthesize the identification of the factors responsible for the existence of drought. Campos (2014), states that, historically, policies to combat drought acted as decontextualized technological solutions, without concern for the development of the local economy and without attention related to local knowledge and practices.

Considering the public policies aimed at the development of the Semi-arid, it is possible to consider that they revolve around the own vulnerabilities of the region, thus constituting a factor of reproduction of its own condition, that is, according to Farias and Pinheiro (2012), welfare policies ended up generating negative images of the region and fostering social conformism in people, through the emergency fronts or the construction of dams, "developing" a constant operation of recreation and adaptation of the mechanisms of domination and perpetuation of misery in the Northeast.

Thus, it is necessary to understand quite critically the real interests in the adoption/implementation of such public policies, since these investments present associated political and economic interests, especially when in the periods of drought, politicians find opportunities to raise and divert resources that can be used

for other purposes. Moreover, such emergency or public calamity situations may also figure as an opportunity to "promote" those directly or indirectly involved in politics, since the "drought discourse" can be used as a strategy, for example, in the narratives of political groups that seek to captivate and win over more voters who end up sensitizing themselves to the cause.

However, it is not always opportunism and political interest that mark such a narrative. A more recent movement (especially since the 1980s), which seeks to demystify this whole problem around drought, is also worth highlighting, based on the adoption of another terminology that seeks to translate today's public policies more faithfully: living together with the semi-arid. After all, if we consider the aforementioned physical-natural characteristics of the semi-arid, it is known that droughts and droughts are recurrent in this region of Brazil. Thus, "living together", "adapting", "mitigating" are the watchwords, according to this perspective.

Public policies for the semi-arid: from the discourse of combating coexistence with droughts

When referring to the power of the State within the context of the Northeast region, it can be seen that such actions are centralized, as well as divided according to their specificity. Thus, these actions solidified as national bodies were created to combat drought. Unfortunately, such actions, instead of trying to "combat" the effects of drought, eventually turned into a power dispute of the ruling oligarchies.

The first actions were largely based on the policy of sugar. Such dams, usually built in the interior of latifundia, were incorporated into the property of the landowners, offering limited access to water for the most needy population. Thus, the construction of these weirs, instead of allowing access to water in abundance for the less favored layers, ended up favoring large landowners.

Thus, it is noted that the first attempts that focused on the "fight against

droughts" were structured in the attempt to direct water to the Semi-arid. Besides the creation of the IOCS in 1909 (current DNOCS), such actions sought to circumvent the effects of prolonged droughts characteristic of the semi-arid region, usually from the realization of works directly or indirectly linked to water storage (construction of weirs, dams, wells, roads, etc.).

Despite the reformulation of the IFOCS, transforming itself into DNOCS, National Department of Works Against Droughts, the organizational problems regarding education, technical assistance, lack of rural credit and other applications were perpetuated. In the 1950s, the DNOCS again experienced an increase in investments during the government of Getúlio Vargas, who ruled the country from 1951 to 1954. But it is under the management of Juscelino Kubitschek (1956-1961) that an aspect focused on industrialization was undertaken in the Northeast, with the creation of the Working Group for the Development of the Northeast (GTDN), succeeded by SUDENE.

However, the scenario would change from the 1980s, when the conceptions of coexistence with the semi-arid began to gain notoriety. The political field was changing and new paradigms were emerging within the Brazilian reality. In this period, when the first conceptions of sustainable development were inserted and the idea of combating drought became obsolete, the new conception of coexistence with the semi-arid region gained space within the proposals of the Federal Government for the Northeast region.

These changes, loaded with technical support and associated with specific knowledge of the semi-arid, also considered cultural reality, economic potentialities and especially environmental aspects. After all, it is not coherent to combat something recurrent and characteristic of the region (from the physical and natural point of view of the region). In essence, coexistence becomes a much more appropriate term, since it is linked to the idea of adaptation, dealing with possible adversities, offering mechanisms that allow societies to respond positively to a

situation of drought.

Moreover, it is worth mentioning that the policies of "coping" with drought have evolved, so that one approach should not be considered excluding the other, due to the unpredictability of the phenomenon of droughts. As an example, we mention the cisterns (mechanism adopted for coexistence with the semi-arid/drought), initially implemented to store water from the rains, but today they can also store water from weirs (thought from the policy of "combating" droughts) or by transport in kite cars (emergency measure). Thus, it is noted that this "transition" is better understood if considered as transversal to policies to combat drought, given the complementary and synergistic character they have (MACHADO et. al., 2017).

An important milestone that represented this transition was the repercussion of an official document published in 1982 by the Brazilian Agricultural Research Company (EMBRAPA) and the Technical Assistance and Rural Extension Company (EMATER), entitled: *Convivência do Homem com a Seca*. Despite being a very preliminary proposal, the objective of the Federal Government was to discuss alternatives of coexistence between society and drought. According to Silva (2006) the basis of actions of the government's programs was the creation of water capture and storage infrastructure, mainly for small farmers. With this, such actions were based on the own experiences of the Northeasterners and institutions operating in the region.

From then on, some changes began to be implemented during the droughts of later years, such as the drought of 1992-1993. This situation generated a series of charges for the action of the Federal Government. Around 1993, for example, the rural trade union movement, associations, cooperatives and non-governmental organizations (Ngos), organized a public event in Recife and occupied the headquarters of Sudene, requesting immediate measures to try to solve the problems associated with drought and the actions that sought the progress of the Semi-arid (SILVA, 2006).

The coexistence with the semi-arid, in its essence, was implemented in order to raise reflections about the change in the relationship between society and nature, enabling a higher quality of life for families through the use of social technologies that relate economic development to environmental sustainability, providing a more open view of the potentialities and limitations of the semi-arid environment, able to demystify the idea of backwardness and social scourge of the region (PAIVA; FALCÃO SOBRINHO, 2020).

The creation of some mechanisms further strengthened this new concept of coexistence with the semi-arid, such as the Northeast Forum, which, having about 300 civilians of the Region, prepared a document called "Permanent Actions for the Development of the Brazilian Semi-arid Northeast", having as its central objective the development of subsistence agriculture, sustainable development, democratization of public policies, thus enabling the (...) "effective resistance to the natural phenomenon of droughts, with the elimination of emergency actions" (FÓRUM NORDESTE, 1993, p.3)

Thus, the Federal Government sought to structure the Support Program for Small Producers in the Semi-arid Northeast, focusing on:

Promote a permanent and self-sustaining process of development in the rural environment of the semi-arid Northeast, which allows: a) to effectively improve the level of income of families, up to levels that guarantee food security, b) to promote consensus on basic services, quality and quantity compatible with the size of the rural population of the Semi-arid Northeast; c) strengthen the process of rural population organization, in order to carry out a real exercise of citizenship (FÓRUM NORDESTE, 1993, p.5).

Later, in mid-1993/1994, the elaboration of the Arid Project brought a proposal of sustainable development for the Northeast, which had as its main objective the establishment of the economy and the semi-arid territory. Thus, some new proposals came to add, including, for example, occupation and production compatible with the

natural resources of the region.

It is important to highlight that the Arid Project was influenced by the World Conference on Environment and Development, held in 1992 in Brazil. This project showed concern about nature and, consequently, to provide a higher quality of life for the semi-arid population, that is, the measures presented in the document aimed at avoiding the environmental burden, as well as meeting the basic needs of the population, with the conservation of natural resources, in particular soil and water resources (SILVA, 2006).

In the meantime, it is already possible to identify a certain "(...) value of studies and research to reduce vulnerability and increase the capacity to resist droughts of populations and productive activities in the semi-arid region." (BRASIL, 1959. p. 118)

After a few years and with the occurrence of another major drought in the period 1998-1999, the Federal Government also implemented a new action: literacy and training young people and adults in the so-called Productive Fronts, in addition to granting credit to rural producers, in the so-called Special Funding Programme to Combat the Effects of Drought. Regarding the actions carried out in this period, Silva (2006) highlights that:

In the first case, they were directed to the Semi-arid, programs of literacy and qualification, favoring a better occupation of the time of the enlisted in the Productive Fronts, with the development of their human capacities. In addition, schools were recovered, the vacancies for elementary school were expanded, and a new daily meal was included for the enrolled children. These actions, without a shadow of a doubt, were fundamental, but they should never be implemented only emergentially in the semi-arid. In the case of the BNB, the intention was to strengthen the water infrastructure, maintain the herd, with the acquisition of inputs and the formation of strategic animal feed reserve; and also, the production of food for human consumption. (SILVA, 2006, p. 80-81)

From all these actions implemented, it is possible to perceive their important role whenever performed continuously and not only punctually (when they occur only in periods of drought), thus appearing as true mitigating measures, mitigating the effects of major droughts.

In 1999, under Fernando Henrique Cardoso, the DNOCS was almost extinguished. However, the mobilizations did not allow this to happen. Even in later years, under the management of Luís Inácio Lula da Silva, there was an increase in investments in the DNOCS.

In the same year 1999, and in a worrying scenario, at the Third Session of the United Nations Conference to Combat Desertification, social movements, churches and Ngos proposed the so-called Semi-arid Declaration, discussing and disseminating alternatives and possibilities that dealt with coexistence with the semi-arid.

This document presents a set of proposals based on two premises: the sustainable use of natural resources from the semi-arid and the breaking of the monopoly of access to land, water and other means of production. According to Silva (2006), the document serves as a reference for the constitution of the Semi-arid Articulation (ASA), which mobilizes about 700 organizations in Brazil, and is expanding.

As a consequence of this organization, the Program of Formation and Social Mobilization for Coexistence with the Semi-arid - One million Rural Cisterns - P1MC was implemented. The main objective of this project is to distribute rain water storage conditions for human consumption among the families of the semi-arid region.

With its execution, thousands of families were benefited with drinking water, as well as training that approached from the coexistence with the semi-arid, to aspects related to citizenship and gender. Agenda 21 Brasileira, created between 1997 and 2001, also advocated this paradigm shift.

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Among so many measures, in essence, such mechanisms sought to:

(...) empower rural people to live with drought, encouraging the use of technologies already proven and disseminated by research centers and non-governmental organizations as experience in the management of natural resources in semi-arid regions (BRASIL, 2002, p.78)

In recent decades, the Federal Government has incorporated ideas and knowledge associated with sustainability, aiming to promote the development of the semi-arid region, including addressing and empowering the sertanejos to live with the semi-arid, as paradoxical as that may be. After all, who knows more about the semi-arid than Sertanejo himself? This figure has been adapting for some time in the semi-arid.

In any case, with the help of research, technology and support itself (either through knowledge and/or public policies), the Federal Government continued to provide opportunities for the creation of new mechanisms, such as the Sertão Cidadão Program: living with the semi-arid and social inclusion. The primary objective of this Program was the implementation of the Semi-arid Planning and Management System, that is, a system that had the capacity to monitor the semi-arid space, from the ecological systems, to the social and economic ones.

Another strategy was the consolidation of the Program of Dissemination of Appropriate Technologies for the Semi-arid, seeking to invest in technologies to show alternatives/possibilities for domestic and external market production.

Established in 2003 by the Federal Government, P1MC was converted into a public policy, with the aim of serving low-income families living in towns and cities under the influence of the semi-arid and with difficulties in access to water.

Also noteworthy is the Conviver: Sustainable Development Program, which was launched in 2008. From this project, the Federal Government sought to develop the semi-arid territory, offering conditions to farmers to improve their quality of life,

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through credits for obtaining and managing water resources, crop insurance (basic income), technical assistance, education contextualized with the semi-arid, among other actions/measures.

Later, in 2010, the National Program for the Universalization of Water Access and Use - "Water for All" was created, with the primary objective of guaranteeing water to the most needy living in regions with low rainfall rates. According to Campos (2012, p. 285):

In the semi-arid Northeast, due to climatic adversities, which cause great vulnerability in water sources, the "Water for All" program represents a great need, but also a great challenge. Diffuse populations that inhabit remote regions of perennial rivers and large reservoirs have their main water sources in small reservoirs and cisterns. However, these sources are highly vulnerable to droughts. In the second half of the year, when about six months are of low rainfall and of rivers with zero flows, most of the sources dry. The presence of kite cars as a source of water supply in the second half has occurred almost every year.

With the implementation of the P1MC and Water for All Programs, the reality of many backwoods has changed. Access to water was even more opportunistic with the recent implementation (in the second program) of polyethylene tanks, which accelerated the installation of such reservoirs, reaching in 2016 the desired number of more than one million installed cisterns (MACHADO et. al, 2016).

Clearly, in the early years of the government of former President Luís Inácio Lula da Silva, there was a considerable increase in first-water social technologies financed by the Federal Government. One factor that contributed to this increase was the improvement in communication between the Community Forum of Public Policies and the Forum of Coexistence with the Semi-arid, with greater fluidity of the ideas produced in the latter (AMORIM; GRISA, 2018).

Regardless of the concept adopted (combating drought or coexistence with the semi-arid), it is quite true that the Brazilian semi-arid, historically, concentrated numerous actions, measures and mechanisms (largely with the support of the

Federal Government) in order to circumvent (at least in its essence, it is what they propose) the effects coming from the water scarcity characteristic of this region.

Whereas in remote decades, the construction of dams, the digging of wells, the Work Fronts and the irrigated perimeters figured as those technologies and actions that were implemented at the time to "combat" the effects of drought, more recently the transposition of water between river basins, the massive installation of cisterns (Figure 1), and the implementation of actions that include from the training of farmers, to the adoption of social technologies such as the cistern-sidewalk, cistern-flushing, the underground dam, stone tank, trench-trench, barraginha, among other social actions/technologies that were opportunized, in large part, with the support of Programs such as P1MC (One Million Cisterns Program) and P1+2 (Programa Uma Terra e Duas Águas), ended up representing more faithfully the idea of coexistence with the semi-arid.

Many of these social technologies have been implemented in the last two decades. In addition, within the Brazilian Semi-arid Articulation (ASA), a network that brings together several civil society organizations, the Cistern Program in Semi-arid Schools and Seeds also figure as important policies that contribute to mitigate the effects of drought.

In order to better present the main mechanisms, measures and distinct moments considered here, the main actions were synthesized, tabulated and listed in the table below (Table 1). Despite the effort to carry out a survey of the actions developed in more recent years, there was some difficulty in accessing information related to the adoption of public policies aimed at mitigating the effects of droughts.

Table 1- Main actions of the Federal Government to combat/live with drought in the Brazilian Semi-arid

PERIOD/YEAR	IMPLEMENTED ACTIONS AND ESTABLISHED INSTITUTIONS
1909	The Empire instituted an Imperial Commission to study the opening of a canal communicating the waters of the Jaguaribe River with those of the

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	San Francisco River, but it was concretized and the property was given to the construction of weirs and tubular wells. In 1904, several commissions were created: "Weirs and Irrigation", "Studies and Works against the Effects of Droughts" and "Drilling Wells". In 1909, the Inspectorate for Works Against Droughts (IOCS) was established, which was transformed into the 1919 Federal Inspectorate for Works Against Droughts (IFOCS).
1945	The IFOCS was renamed the National Department of Drought Works (DNOCS). In 1948, the São Francisco Valley Commission Departamento Nacional de Obras Contra a Seca (DNOCS) was created to create a new management method to combat droughts.
1951	The Nordeste Bank was created in 1952 to provide financial support to the municipalities that were part of the Seca Polygon. In 1956, the Working Group for the Development of the Northeast (GTDN) was created to carry out socioeconomic studies for the development of the Northeast.
1959	This year the Northeast Development Council (CODENO) was created, with Celso Furtado as director and in charge of fighting for the approval of SUDENE in the National Congress. Also in that year SUDENE was instituted.
1970	Regional development programmes have boosted agriculture in the country. The main ones were: Programa de Integração Nacional (PIN), Programa de Redistribuição de Terra e de Estímulo à Agroindústria do Norte e Nordeste (PROTERA, 1971), incorporated into the I Plano de Desenvolvimento Nacional (I PND), the Programa Especial para o Vale do São Francisco (PROVALE, 1972) and the Program for the Development of Integrated Lands of the Northeast - Northeast Pole (1974), incorporated in the 11 ^o ; National Development Plan (II PND)
1976	The Project Backcountry was created to make the economy more resistant to the effects of drought by the association between irrigated agriculture and drought.
1979- 1983	In 1979, the Northeast Water Resources Program (Prohidro) was implemented, through a cooperation agreement with the World Bank, to increase the supply of water resources through the construction of public and private weirs and well drilling. Later the program was renamed Pro-water. In 1978, the National Irrigation Policy was created, emphasizing the social function of irrigation, highlighting in the northeastern case the fight against poverty and drought resistance. In 1981, the PROVÁRZEAS Programme was created by EMATER to assist small farmers. In 1984, there was an agreement between the Ministry of Integration and the International Bank for Reconstruction and Development (IBRD) to admit the implementation of medium-sized enterprises in irrigation projects,

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	which could occupy up to 50% of the perimeters.
1987	The Northeast Irrigation Program (PROINE, 1986) was extended to the National Irrigation Program (PRONI, 1986). The Nordeste I Project encompassed six programs and supported only the Rural Small Producer Support Program (PAPP) in the semi-arid region.
1990-1993	The Institute of Applied Economic Research (IPEA) released the Hunger Map in Brazil (1993). Due to popular pressure (Movement Action for Citizenship Against Hunger, Misery and for Life) the National Food Security Council (CONSEA) was created, which coordinated the Emergency Food Distribution Program (PRODEA, 1993). This program originated the Bolsa Renda program in 2001 and the Bolsa Família in 2004. In the 1990s, debates began on small producer settlement projects versus the participation of the entrepreneur producer. In 1997 the Irrigation model was established with family lots for settlement projects and public irrigation projects fully occupied by companies.
1998	Creation of the Federal Program to Combat the Effects of Drought, coordinated by SUDENE, to help those affected by drought. In 1998, the Court of Auditors of the Union (TCU) began to publish the results of audits of social programs. Among others, the Northeast I SUDENE Program was audited to help those affected by drought. In 1998, the Court of Auditors of the Union (TCU) began to publish the results of audits of social programs. Among others, the Northeast I Program (DNOCS and CODEVASF), Pro-water (DNOCS and SUDENE) and the Good Water Desalination Program were audited. To avoid the dismantling of public irrigation projects, in December 1999, SUDENE, SUDAM, DNOCS and CODEVASF were linked to the Ministry of Irrigation (established in September 1999). In July 1999, the National Council for Civil Defense- CONDEC, the Manual for Emergency Situation Decree or State Emergency Decree, was drawn up.
2001- 2006	Creation of P1MC - One Million Rural Cisterns within the Program of Formation and Social Mobilization for Coexistence with the Semi-arid, of the NGO ASA- the Articulation of the Semi-arid, created in 1999. P1MC becomes the Federal Government's Public Policy, when the Partnership Agreement number 001/2003 with the Ministry of Social Development (MDS) is signed. Due to the allegations of corruption disclosed by the TCU, SUDENE was extinguished in May 2001, having been renamed to Northeastern Development Agency - ADENE in June 2004. Until 2006, more than 162,000 cisterns were built, mobilizing about 178,000 families in 1001 municipalities.
2008-2014	Creation of programs that intensified the permanence of the man of the field in its original place. There was permanence and strengthening of many programs such as Safra Insurance and the creation of Water for All

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	and the Cistern Program in Schools. During this period, the Ministry of Integration also created the Integrated Disaster Information System (S2id), which computerized all information relating to droughts/droughts, from damage in certain localities due to droughts, until the request of resources to the Federal Government for response and recovery actions, thus promoting greater transparency and facilitating communication between federative units. Since 2009, there has been an increase in the implementation of Social Technologies of different coexistence with the Semi-arid, especially in the years 2011, 2012 and 2013, the latter two considered representative years of drought.
2015-2016	There is a certain decline in the implementation of social programs and technologies of Coexistence with the Semi-arid, although this period represents the apex of an important drought started in 2012.
2017-2020	The implantation of Cisternas in the semi-arid ended up becoming a public policy increasingly discontinued in this period. The ASA, together with the Consortium Northeast (which brings together governors and secretaries of the northeastern states), began to raise funds and carry out mobilization campaigns due to the reduction in the transfer of public resources identified, year after year, in this period. In 2020, in the government of President Jair Messias Bolsonaro, the construction of cisterns has achieved its lowest level of investments since the creation of P1MC. The Freshwater Program (PAD), which in 2011 became part of the Water for All Program, was reformulated. The Federal Government has given greater attention to the desalination process. Initiated in 2007, the São Francisco River Transposition enters its final stretch. In this period, some sections were inaugurated, but not all with the estimated total operating capacity.

Source: Prepared by the authors based on Nascimento (2005); ASA (2021); BRAZIL (2021)

It is worth mentioning here that, as seen in the previous table, the social technologies implemented in the semi-arid cannot be discontinued. In the year 2020, the inertia of the Brazilian government regarding the implementation of such policies reflects its neglect to consolidate provide more resources that provide greater development and quality of life for the localities and families that need this benefit.

The insignificant number, for example, of cisterns installed in the said year reflects well such disinterest, when only 8,310 cisterns were installed from the P1MC Program (One Million Cisterns). Although the context of the Pandemic had a rebate on this number, there is no denying the significant gradual decrease already in

previous years (Figure 2).

Figure 2 - Number of tanks built with federal funds from 2003 to 2020



Source: Prepared by the authors (2021); Wood-based (2020); Wood (2021) and from information provided by the Ministry of Citizenship

From 2014 (year with the largest number of constructions ever recorded) until 2020, it is estimated that there was a decline of about 94% in the implementation of cisterns (MADEIRO, 2021). Even, such a public policy, instead of cuts and restrictions on transfers, should receive even more investment, since Sertanejo needs such social technology to fulfill the social isolation recommended by health authorities in the context of a pandemic.

Final Considerations

Such discussion around the duality of combating drought and living with the semi-arid runs through a series of other analyses that are not exhausted here. Anyway, from what was exposed, it is clear that the Brazilian semi-arid cannot be viewed as a "problem region" or reduced to a "noticeably dry region".

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After all, before this vast territory we can observe good examples that show a development based on sustainable principles that were not previously imagined, such as the different types of cisterns implemented, underground dams, among other mechanisms of coexistence with the semi-arid. This is a paradigm shift that points to a future in which more actions, measures and mechanisms based on coexistence with the semi-arid are experienced and implemented.

Of course, there is no way to disregard a whole political/economic interest wrapped in this web of relationships that include many individuals and spheres. However, it is believed that with the correct performance of the public power and the community organization, we have a semi-arid environment more conducive to development and with a higher quality of life.

It is expected that this debate will be increasingly opportunistic and the implementation of measures aimed at coexistence with the fortified semi-arid, because given the scenario projected by the models of the Intergovernmental Panel on Climate Change (IPCC), which point to a greater intensity and recurrence of consecutive dry days for the semi-arid, it is necessary to return even more our concerns and actions to this future that does not seem very encouraging, but that can be circumvented with actions well delineated and executed.

Such public policies require greater attention and investment by the Federal Government. After all, in recent years, what is observed in the implementation of social technologies and actions/measures of coexistence with the semi-arid is a discontinued policy, where budget cuts and limitations in the transfer of resources end up appearing as an obstacle to the social development of such localities and families that were gradually benefited from government programs.

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Author 1 - Textual Production and Tabulation of the main actions/public policies of coexistence with the semi-arid region.

Author 2- Textual review and discussion about the structuring of public policies in the semi-arid region.

Author 3- Text revision, formatting, production of graphic content and systematization of information regarding public policies implemented in the semi-arid region.