The One Million Cisterns Programme

New approaches and challenges for the Brazilian semi-arid region

Brazil’s One Million Cisterns Programme (P1MC) is a community-led project that addresses water shortages in Brazil’s semi-arid region through rainwater collection and cistern storage. The project came from a civil society demand and was incorporated by the Federal Government as public policy. The P1MC was supported with resources from the Federal Government and the Brazilian Development Bank (BNDES is its Portuguese acronym). In its 20 years of implementation, the project has achieved the following targets:

- It has benefitted 628,355 families;
- The list of people registering is 70 per cent female;
- The project has demonstrated the potential to stimulate the economic development of the region and contribute to increasing food security whilst enabling an environmentally friendly and community centred approach.

The project responded to local priorities and involved beneficiary communities at the co-creation of every stage of the project cycle. It has been especially beneficial to women.

Project details

In 2000, the One Million Cisterns Programme (P1MC, to use its Portuguese acronym) started as part of organised civil society actions, mainly around the Brazilian Semi-arid Articulation – ASA. The primary goal was to guarantee water for human consumption, seeking a simple and inexpensive strategy, but with great efficiency for farming families.

The lack of access to water for families in Brazil’s semi-arid region has serious consequences, including high levels of infant mortality and high incidence of diseases (such as malnutrition, diarrhoea etc.). In addition, collecting water is a strenuous and costly job that remains, almost exclusively, the responsibility of women in the region. Women often walk long distances to collect drinking water, which is often of poor quality. The solution proposed was to guarantee a structure for rainwater storage, which provides water security during the dry season for consumption by the affected families. Thus, the idea of the plate cistern used by the P1MC was born.

The P1MC places democratically-controlled choices in the hands of people living the semi-arid region. In contrast to other policies to combat drought, P1MC strengthens the struggle for the human right to water. It opens up possibilities for questioning the social, cultural and political structures when it comes to local populations, where ‘power’ involves controlling access to clean, quality water for consumption and production, land concentration and access to spaces for political participation by local elites.

It is in this field that we place P1MC as one of the main social technologies to encourage coexistence with the semi-arid region. It is an important technological innovation, where farmers are the subject of the social process (from the political debate about the model and proposal to the implementation, development methodology, support and socialisation experiences). Thus, they build knowledge as a process of change towards a new reality.
Origins of the P1MC project

The P1MC emerged as an organised civil society action, with the perspective that it is possible to live with dignity in Brazil’s semi-arid region. Initially, the implementation of cisterns sought to reach a population of 5 million people meeting the following criteria: being in the range of poverty and social vulnerability, being a resident of the rural area and not having regular access to water.

As a social technology and a proposal from civil society to be implemented by the state, it was necessary to think of a methodology that would stimulate the process of mobilisation for securing fundamental rights, healthcare training, but also awareness of rights. The plan was to trigger a quality control and transparency process for the use of public resources. Thus, in every municipality where the P1MC has been implemented, a Municipal Commission was organised with local civil society organisations and representatives of the municipal authorities, a health secretariat, social assistance secretariat, social movement and trade union etc. They discuss the importance of the programme for the municipality; they select the communities most in need of access to water; they select the families who meet the previously established criteria; and they control the implementation of the project and the use of the resource.

Its implementation presupposes the participation of the families in the entire process, which includes training for one family member on water resources management, before the cistern is constructed. It is worth clarifying that, in the community, the families who are beneficiaries of the programme are also selected by a local collective, a community commission, which does so according to eligibility criteria. Priority is given to families: with children of up to 6 years of age; including elderly people; including persons with disabilities; and those families headed by women.

The process of participation in these public spaces responds to the greater or lesser capacity of civil society to be organised and to propose new arrangements for the implementation of public policies. This is a process that is rich in learning and expanding capacities (questioning and reorganising the social and political system) and creating new opportunities for access to services and, above all, access to cisterns and quality water as a fundamental and inalienable human right. The human right to water, included in the Brazilian constitution, was one of the premises for the institutionalisation of the P1MC as a state policy.

Thinking about the size of the demand that was studied at the time, which ended up providing the programme with its name, there would be no way to guarantee in the short or medium term the right to access to water for millions of families living on the poverty line, without the guarantee of substantial resources from the Brazilian government.

P1MC development and impact

From 2003 onwards, P1MC then carried out the implementation process with ASA together with more than 750 non-governmental organisations (NGOs) across the semi-arid region. During the 20 years of implementation, 628,355 families have benefited, of which almost 70 per cent are registered in the name of women. This is an investment of over R$ 1.1 billion (corresponding to more than US$ 207 million, as of March 2021).

Funding came mostly from a partnership with the federal government. At first, the programme involved partnerships with different areas of government, such as the Ministry of the Environment and the National Water Agency. However, later it ended up focusing on the Extraordinary Ministry of Food Security partnership, which finally became the Ministry of Social Development. Most of the future partnerships were carried out, in addition to the federal government, with the articulation of ASA with other organisations, such as Spanish International Cooperation and state-owned companies such as the Banco do Brasil Foundation, Petrobras, the Company of the Development of Sao Francisco and Parnaiba Valley (CODEVASF) and the Brazilian Development Bank (BNDES).
It is worth mentioning that the individual cost for building a 16,000-litre plate cistern is R$ 4,560.11 (which amounts to US$ 815). The project demonstrated a potential to stimulate the economic development of the region, provided by the insertion of large amounts of resources in the municipalities and their distribution in the local economy. The project surpassed more than one million cisterns executed by civil society and providing a potential of more than 10 million m$^3$ of water, appropriately stored, as well as providing family autonomy. This contributes strongly to economic and social dynamism, to the decentralisation of resources, as well as increasing the social, political and cultural capital of families.

Several studies and other research that has been carried out demonstrates the impact of the programme for families in the region, highlighting issues such as contribution to the autonomy of farming families and questioning local oligarchies, with a break in dependence; strengthening self-esteem; settling families in rural areas with reduced migration; quality of life and food security for families that have access to quality water; reduction and easing the work of women and children “responsible for fetching water”; and the recognition of women as subjects of the law, to the extent that they become owners of the projects, among others.

These are direct consequences of P1MC activities for the beneficiary families, since the methodology is part of the educational process of understanding and questioning reality. Moreover, the ASA cistern programmes received several awards. The efficiency of its methodology in the implementation and management of public resources stimulated the Brazilian state to create its own “Cistern Programme". Through it, the federal government managed to reach the goal of supplying more than one million cistern plates with 16,000 litres of storage capacity.¹⁰

Women and access to water: Guaranteeing food and life security

The P1MC unlocks a great deal of progress, not only for families but also for rural communities as a whole, including increased school attendance, reducing the incidence of diseases due to contaminated water consumption, and the reduction of women’s workload in domestic activities.¹¹ Throughout its 20 years of implementation, adaptations and restructuring of the P1MC, the reality of the families shows positive impacts and are direct consequences of the programme’s action with the beneficiary families as well as with the communities. The methodology is part of the educational process of understanding and questioning reality, which expands the interpretation of the world beyond the family.

With the P1MC, we see progress in relation to the presence of women in programmes and public policies as holders, since there is a path for them to be the main beneficiaries, as already mentioned above. Despite several obstacles,¹² they continue to reinvent participation and question the public spaces where decisions are made, promote significant changes in power relations in the agroecosystem, avoid patriarchal structures that see them only as caregivers and housewives, reinvent spaces productively, improve their family diets and always seek to participate in training processes, etc.

The P1MC and the daily changes in the lives of rural women

“Before we had the cistern here, to get water, was either the water truck that came every 3 months or I would get up every day at 4 in the morning to fetch water, which was bad, dark, and salty. My first daughter was raised on this water. Now with the cistern I know my water. We clean the cistern, we take care of it. My second daughter no longer knows what bad, salty water is, nor what it is to wake up to carry water on her back”.

Mrs Mo – Brejinho-Surubim Community/Pernambuco

Access to the cistern is one of the factors that has changed the lives of women and is perceived as an achievement. There is a significant improvement in their lives, as when the cistern is full, they do not need to fetch water that is far away and of poor quality.
For Mrs Lucia, a resident of the Sitio dos Pereiros community, in the municipality of Santa Cruz da Baixa Verde/Pernambuco, access to the cistern allows her to spend more time with her son and reduces the workload, which for her represents a better standard of living:

“Now with the cistern things are better, right? I have more time to be with my son and I think and a better standard of living as I don’t have to walk to fetch water. Since I was a child, I had to fetch water in cans. It was always a painful experience. Even now with the drought, one just puts water in the cistern to avoid issues and there is water next to the house. Now I’m looking for another cistern, to take care of my garden.”

When asked about the importance of the cistern, community members reiterate that it is excellent technology, especially for women. According to Mrs Edileuza, also a resident of the Sitio dos Pereiros community, Municipality of Santa Cruz da Baixa Verde/Pernambuco:

“It was very difficult to get the cistern, as there were only 15 members here for the community. When I was chosen, I was over the moon. I already knew about the cisterns, I even went to an exchange in Paraiba and saw it. Here I needed my brother and brother-in-law’s help to dig the pit, but I helped too. I carried a lot of stones, as there a lot here. I think the cistern is really great. Right now, I can do a lot of things, because then I had to take my daughter to fetch water and it was too much.”

It is important to note how the methodological process contributes to empowering women, which increases the effectiveness and efficiency of this programme, as one of the criteria for access is participation in several training courses. Participation is essential for improving women’s autonomy as they begin to access new knowledge to improve their social, political and cultural capital.

The participation process makes women a role model for other communities and these women, receive and participate in visits and exchanges and are also included in several other ASA projects.13 This has valued and strengthened their self-esteem and strengthened their autonomy.

Access to a cistern is perceived as a right and not as a favour, or a bargaining chip. For the women interviewed, this is another important issue. Before it was considered “normal” to have to sell a vote to a councillor who took a water truck, or the mayor who promised to make a dam or dig wells. Women claim that they can now see that their vote is priceless and that they must fight for all their community’s rights. According to Mrs Iris, resident of the Pereiros Community in the municipality of Triunfo/Pernambuco:

“Before, we were treated like cattle: the mayor ordered, and we accepted. I have seen many people promising wells, water holes and dams in exchange for votes, and when the candidate won, he didn’t even remember us. When I started to participate in the union meetings with ASA, I began to understand how things were and now, frankly, it’s embarrassing. Now, politicians don’t come here promising water anymore, now we send them on their way. We went to a protest march in defence of our river, because without it, there is no water.”

The words of Mrs Iris highlight another dimension when it comes to access to the cistern. This is the promotion and encouragement of participation and expansion of the capacities of its community, as it begins to participate in discussion spaces, training courses and formation in several themes, such as environmental education, water resources and food security.

Another fundamental dimension for women’s lives in their relationship with the cistern is the improvement in the quality of food, the increase and diversification of (agricultural) production, raising small animals, remodelling of agroecosystems, awareness of the importance of healthy food, reduction of diseases, conservation of agrobiodiversity, defence of biomes and strengthening of the social fabric in the territories where they live.

For Mrs Mo, the cistern not only made it possible to have better quality water and improved health but also, from her participation in the courses and exchanges, she broadened her view of her own backyard as a production and living space:

“After the cistern, I started to see that I could also have my plants, reuse the water, by using them properly. I started with medicinal herbs, bananas, papayas I learned with the technical advisory how to implement intercropping. We already grew beans, manioc, but I learned how to do it and today my yard is beautiful and has everything.”

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The way forward...

Clearly, there is still a long way to go when it comes to coexistence in the semi-arid region with dignity and respect for the populations that live there, especially women, youth, children and the elderly, who still suffer gender and generational violence. The challenges are many, but we can point to advances in the field of access to water resources from the implementation of simple technologies such as the cisterns of the P1MC programme.

For the population of this region, the construction of large projects does not always mean a better life, or even access to quality water, because these large projects are often appropriated by the local elites, and thus become part of the oppression of the people, of the subordination to the local powers, and of the oppression of the large farms (of agribusiness and hydro business). Thus, having access to simple and low-cost technologies such as cisterns is part of the process of fighting and questioning the development model that the semi-arid region has historically been subjected to.

The debate process and access to cisterns sparks a process of reflection/action regarding realities, in which decisions go through other political spaces, such as community associations, trade unions, councils and women's groups.

At a local level, there is a reconfiguration of policy-making and of local institutions due to changes in institutional arrangements. Women also take a more active role. By strengthening themselves in training and participation spaces, they begin to influence local spaces and question the forms and rules of participation. This is a determining step in the construction of new experiences in sustainable local development. This can be perceived as one of the intentional developments of this programme, which should be a strategy of political action in the public sphere of a deforming and deregulating nature, orienting actions for building a process of democratisation and counter-hegemonic struggles to construct a new project for a society that is anti-capitalist and anti-patriarchal.

Another issue that presents itself as a reflection and consequence of the access to social technologies such as cisterns is that it must be interconnected and strengthen the process of agroecological transition. In other words, its implementation must dialogue with the family’s reproductive complexity: the family is interconnected to cisterns, reflection on water, participation, food production, food security, preservation of the biome and begins to perceive itself as a subject in the process, in a more complex and holistic way.

There is still a long way to go. The path towards the development of the semi-arid region involves access to land and water (involving the struggle for agrarian reform and against hydro-business). This can be done through the strengthening of agroecology (not only as a productive model but as a way of life, of relating to nature), the recognition and confrontation of gender inequalities as part of the political process and questioning the social, political and economic structures that exclude thousands of people and subordinate to the logic of the market.

The programme is innovative because the main objective of the actions is to trigger a process of mobilisation and training with a focus on coexistence in the semi-arid region, political participation and the construction of simple alternatives. It demands changes in the acting capacities and strengthening of the potential of the different actors, namely, rural women and managers of the state, technicians and ASA.

The process is not linear and, therefore, we cannot think of a development model for the semi-arid region that does not go through questioning power structures, or in which women are not subjects of the law, being perceived as part of the democratisation process of Brazilian society. They are generating new experiences of local governance, in which different actors participate and rebuild based on their own realities, strengthening the public space as a way to experience politics; questioning established institutions; and requiring the formation of new political commitments to achieve sustainable development processes.
The slab cistern was invented by Manoel Apolonio de Carvalho, known as “Nel”. He was a farmer in the semi-arid region who migrated to work in south-eastern Brazil, acquiring the technical apprenticeship he acquired to create a cylindrical cistern model, with curved pre-cast plates. Resistant, low cost and easy to produce, many families with financial resources started to reproduce them. The technology could guarantee access to water for people from the semi-arid region.

For Dagñino et al. (2003) social technologies are opposed to conventional technologies because they are labour-saving, environmentally unsustainable, intensive in synthetic products and produced by large companies. Their production cadence is provided by machines. Their productivity indicator is estimated in monetary terms, segmented, that is, and does not allow the control of the direct producer; it is hierarchical, because it demands the figure of the owner, the boss, and is monopolised by large companies from rich countries. On the other hand, social technologies are aimed at the internal mass market, small in physical and financial size, non-discriminatory (employer vs. employees), liberating the potential and creativity of the direct producer, capable of making self-organised and small business economically viable, and they are appropriated, reproduced and used by small groups. There are several social technologies for coexistence of populations in the semi-arid region, such as drying terraces, stone tanks, underground dams, roofed cisterns, popular water pumps, small dams, tarapaulin terraces, trench terraces, etc. Dagñino, R.; Gomes, E.; Costa, G.; Higa, W.; Thomas, H. Por uma política de ciência e tecnologia de esquerda. Cidadania/EAESP/FGV, 2001.

The necessary requirement in return for the construction of the cistern is the participation of a family member for two days in the Water Resources Management (WIRM) course, where they discuss the availability of water in the community, management of the water in the cistern, care for the water and the maintenance of the cistern, digging the pit for building the cistern, the service of bricklayer during the construction of the cistern, and feeding two bricklayers for three days (the average time for the construction of the cistern).

Within the family selection process, priority is given to families headed by women. And even in families with a male presence, the guarantee that the cistern is an achievement is registered in the name of the women. This is because the task of carrying water to supply the family was, and still is, mainly attributed to women. Moreover, the cisterns capture rainwater from the roofs. And for this reason, they are close to the houses, called ‘terreiros’, around the house or backyards, being predominantly an area of activity for women.

To learn more, visit http://www.asabrasil.org.br/acoes/p1mc

More than 95 per cent of the 628,355 social water technologies for human consumption implemented by ASA were in partnership with the federal government, mainly through the defunct Ministry of Social Development and state-owned companies. However, the federal government made other partnerships with state governments and municipal consortia and thus managed to surpass another one million cisterns. It is worth mentioning that, over time, demand has increased and today, within the programme’s criteria, an estimated 350,000 families remain without access to water for human consumption.

See https://www.asabrasil.org.br/acoes/p1mc

Lack of support from partners or husbands; lack of documentation such as birth certificates; low self-esteem; insecurity; issues focusing on technical advice that do not prioritise the presence of women, among other issues.

As a result of P1MC’s activities, it emerges from several experiences lived by families, and from the need to expand the activities of civil society in relation to the policies of living with the semi-arid Programme One land and two waters – P1+2 intended to promote sovereignty, food and nutritional security and the generation of jobs and income for farming families, through sustainable access and management of land and water for food production, primarily intended for production for self-consumption (seeking food improvement for the family) and the rest for the market. According to ASA, 1 means land for production. 2 corresponds to two types of water – drinking water, for human consumption, and water for food production. The families assisted by P1+2 are selected based on the following criteria: families with access to water for human consumption, as in the case of the P1MC cisterns; female heads of household; families with children aged 0 to 6 years of age; children and teenagers attending school; adults aged 65 and over, and families including people with special needs.


Deformalize – change in the form of representation and participation; deregulation – change in the rules of representation and participation.