

Seeds of the Brazilian Semi-Arid

Policy Brief on Strengthening
Agrobiodiversity Conservation
and Climate Resilience





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Conservation and Climate Resilience**



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Introduction

This policy brief compiles evidence, policy inputs, and recommendations to guide public policy formulation based on the outcomes of the project “Reversing the Desertification Process in Susceptible Areas of Brazil: Sustainable Agroforestry Practices and Biodiversity Conservation”(Redeser). The initiative was executed under an agreement signed between the One Million Cisterns Program Association (AP1MC) -the legal entity representing the Brazilian Semi-arid Articulation (ASA) -and the Food and Agriculture Organization of the United Nations (FAO), under the technical coordination and supervision of the Ministry of the Environment and Climate Change (MMA).

The Brazilian Semi-Arid is the largest tropical dryland region in South America and home to more than 28 million people. The experiences presented in this policy brief demonstrate how community-led approaches strengthen agrobiodiversity conservation, climate resilience and food sovereignty in drylands.

In a scenario marked by the climate emergency, the lessons learned from this initiative become even more vital. The project demonstrates, in practice, how communities across the Brazilian Semi-Arid have been developing sustainable solutions for coexisting with the Caatinga and Cerrado biomes through agroforestry systems and the conservation of local agrobiodiversity.

Strengthening Community Seed Banks and Houses (Casas e Bancos Comunitários de Sementes - CBCS) across the Semi-Arid represents not only the recognition of a rich genetic and cultural heritage, but also a concrete strategy to combat desertification, food insecurity, and biodiversity loss. Coordinated action among government, civil society, and the scientific community will be decisive in consolidating a territorial development model that is equitable, sustainable, and climate-resilient.

Brazil's recent exit from the Hunger Map underscores the strategic role of public policies that promote the human right to adequate food. Within this framework, strengthening CBCS across the Semi-Arid is essential to consolidating a sustainable, healthy food production model that supports dietary and agricultural diversity, thereby promoting Food and Nutrition Security and Sovereignty.

This document presents the key findings of an evaluative assessment covering 875 CBCS, built upon benchmark experiences across states in Brazil's Semi-Arid region. The text provides project context, details the methodology applied, outlines main field diagnostic findings, and offers a set of strategic recommendations to strengthen and enhance these structures - fully aligned with the principles of Living with the Semi-Arid and agroecological transition.

The practices developed by seed guardian families within their territories serve as concrete inspiration for crafting innovative public policies aimed at fostering resilient food systems and conserving Brazil's biomes.



Da luta eu não fugo



argaridas 2015
iba



Context

The conservation and management of heirloom seeds represent a fundamental strategy for maintaining agrobiodiversity, food security, and the sustainability of rural communities in the Brazilian Semi-Arid. Historically, Community Seed Banks and Houses (Casas e Bancos Comunitários de Sementes - CBCS) have played a central role in this process, functioning as collective spaces for collecting, selecting, storing, and distributing seeds adapted to local planting conditions, as well as multiplying native seeds and producing seedlings, including nurseries for native and forest species.

The actions of the CBCS strengthen the autonomy of family farmers, reinforcing traditional knowledge and practices within agroecological farming systems. This ensures food and nutrition security and sovereignty, contributing to genetic sovereignty and sustaining the territorial, cultural, technical, and scientific dynamics of the Brazilian Semi-Arid.

Over its 25-year history of advocating for, propagating, and implementing the political project of Living with the Semi-Arid, the Brazilian Semi-Arid Articulation (Articulação Semiárido Brasileiro - ASA) launched in 2015 the Training and Social Mobilization Program for Living with the Semi-Arid: Agrobiodiversity Management - Semi-Arid Heirloom Seeds. This initiative reinforces the region's culture of stockpiling, focusing on the recovery and conservation of heirloom seeds. Beyond infrastructure for storing drinking and production water, the peoples and communities of the Semi-Arid receive support in their role as guardians of heirloom seeds.

This effort is further amplified through partnerships established by ASA with key entities, including the Ministry of Development and Social Assistance, Family and Fighting Hunger (MDS); the Ministry of Agrarian Development and Family Farming (MDA); the National Supply Company (Conab); the Brazilian Agricultural Research Corporation (Embrapa); the National Bank for Economic and Social Development (BNDES); and the Banco do Brasil Foundation.



The Program's design is rooted in strategies to recover, value, and conserve genetic heritage and associated traditional knowledge by strengthening community self-organization. Over the course of the initiative, 859 Community Seed Banks and Houses (Casas e Bancos Comunitários de Sementes - CBCS) were established across diverse territories in the Semi-Arid.

This year (2025) marks the 10th anniversary of the launch of the Semi-Arid Heirloom Seeds Program (Programa Sementes do Semiárido). Its trajectory unfolded within a complex scenario: budget cuts to federal public policies beginning in 2016 led to a reduction in heirloom seed activities within ASA projects, ultimately resulting in the complete shutdown of the program, with its final action taking place in 2019.

This period of public policy dismantling coincided with the global COVID-19 health crisis, which brought the entire country to a standstill. The pandemic further contributed to the disruption of rural communities, causing the interruption of territorial dynamics and the weakening of collective management of genetic resources. This complex environment left lasting impacts on political and community structures, directly affecting the guardians of the Semi-Arid's agrobiodiversity.

Work with heirloom seeds resumed under the third Lula administration (Lula 3) through dialogues that established the following priority lines of action: assessing the current status of community seed banks and houses; replenishing seed stocks; re-engaging seed guardians; and expanding the production of native Caatinga seedlings.

Given this context, in 2024 it became urgent to conduct an in-depth study on the operational status and potential of the CBCS. The goal of this assessment was to provide policy inputs to guide the formulation of new guidelines and the resumption of community-level actions across the territories, using the facilities established under the Semi-Arid Heirloom Seeds Program as a reference.





Field Assessment & Evaluation

Building on the Redeser Project, an evaluative assessment of Community Seed Banks and Houses (Casas e Bancos Comunitários de Sementes - CBCS) was conducted across the territories of the Semi-Arid. The study examined key dimensions, including physical infrastructure, available equipment, collective management models, participation in public policies, and genetic material stock volumes.

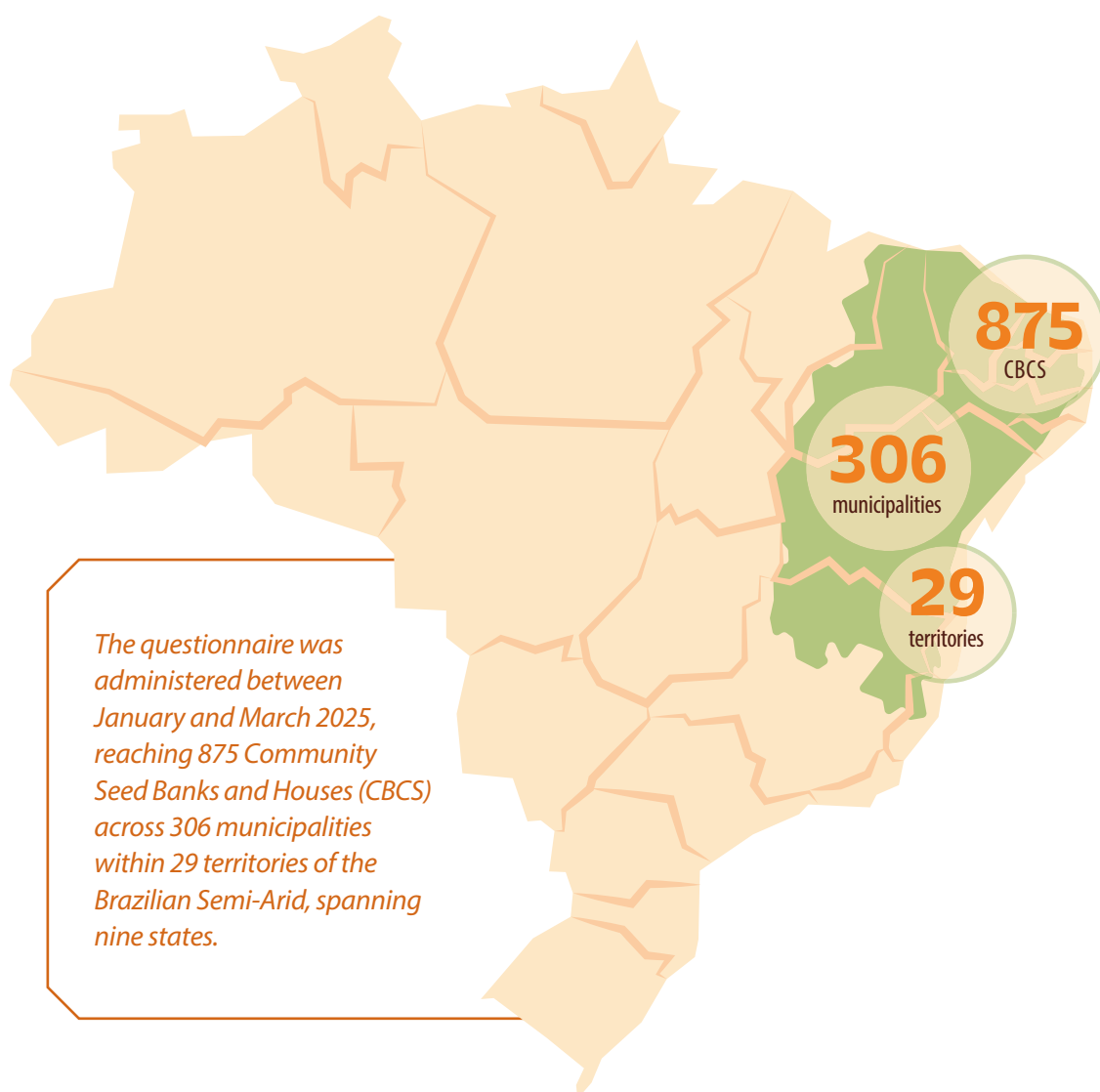
The objective of this study is to provide policy inputs to guide public policy formulation and recommend new directives, based on field diagnostic findings, for resuming seed-related activities across the territories.

The methodology adopted for the CBCS diagnostic assessment stemmed from recognizing the social diversity of the territories and valuing the leading role of local organizations. It integrated empirical, technical, and scientific knowledge accumulated through the experiences of the organizations that make up ASA. Based on this approach, a survey questionnaire was developed through a participatory process, incorporating contributions from diverse social actors, including scientists, field technicians, seed guardians, and community representatives.

Fieldwork was carried out through a collaborative network alongside ASA's partner organizations. Through this territorial coordination, 72 interviewers were selected and organized according to the geographic distribution of the initiatives. Prior to field deployment, and to ensure standardized, high-quality data collection, the teams completed a 6-hour remote training program covering topics such as the importance of agrobiodiversity, the use of KoboCollect, ethics in data collection, and field logistics.

Data collection took place between January and March 2025, reaching 875 Community Seed Banks and Houses (Casas e Bancos Comunitários de Sementes - CBCS) across 306 municipalities within 29 territories of the Brazilian Semi-Arid, spanning nine states. Interviews were conducted predominantly in person, with the support of local community leaders in remote locations facing severe climate or logistical challenges.

Following data collection via the KoboCollect mobile application, the dataset was consolidated through automated reporting tools within the KoboToolbox platform. The data then underwent a rigorous refining process, enabling more in-depth qualitative and quantitative analyses.



Results

Of the total survey universe (875 CBCS), 93% reported that the physical infrastructure of the seed banks and houses remains standing. However, only 42.6% of the units are currently active, while 50.4% are inactive. A smaller portion of units has been completely dismantled and is considered extinct (7% of surveyed units), either due to conversion for other purposes or severe physical degradation rendering them unusable. Notably, seed loss caused by lack of rainfall, non-return of borrowed seeds, community demotivation, and the impact of the pandemic were cited as the primary reasons for inactivity.

Driven by diverse purposes, the CBCS also operate under varying governance structures, including differences in how management committees are selected, meeting frequencies, inventory control mechanisms, and access rules for stored genetic materials. A lack of interest among younger generations was identified as the main operational challenge by community managers (77%).

The assessment also revealed a rich diversity of stored seeds, as well as distinct procurement and storage practices. In total, 84 species and 519 heirloom varieties were identified, led by beans (272 varieties), corn/maize (108 varieties), and lima beans (74 varieties), alongside native, forest, vegetable, staple crop, and fruit species. Significantly, the primary source of these seeds is seed guardian families within the communities themselves (30.63%).

Qualifying management, conservation, and multiplication practices for heirloom varieties

94% demand access to technical assistance

95% demand access to credit

87% demand access to capacity building / training

31,9%

reported receiving technical assistance

Qualifying management, conservation, and multiplication practices for heirloom varieties through ongoing technical assistance is a critical element in strengthening Community Seed Banks and Houses (Casas e Bancos Comunitários de Sementes - CBCS). Among the

mapped units, only 31.9% receive this type of support, whether from public institutions or private organizations. Consequently, there is strong demand for access to technical assistance (94%), capacity building (95%), and credit (87%).

Regarding the National Seed and Seedling System (Sistema Nacional de Sementes e Mudanças - SNSM), 84.5% of interviewed units reported receiving no training or technical assistance directly related to the system. However, 72.9% expressed interest in participating in and receiving support related to the SNSM.

The commercialization of heirloom seeds and access to specific financing mechanisms are vital for economic sustainability, creating new markets, and disseminating heirloom genetic materials across territories. Nevertheless, only 12.6% of the seed banks and houses commercialize their seeds, with merely 7% selling to public seed procurement and distribution programs—despite 53% expressing interest in joining such initiatives. Regarding financing, 93% stated they were unaware of funding lines dedicated to purchasing heirloom seeds.

Finally, the data demonstrate a rich diversity of seeds stored and cultivated across the Brazilian Semi-Arid, highlighting the leading role of the CBCS in preserving and restoring peasant genetic heritage. They further reinforce the urgent need to expand and strengthen public policies that respond to the demands of these populations. These findings evidence a continuous effort to maintain agrobiodiversity, pointing toward strategies focused on food, nutrition, and genetic security and sovereignty, as well as sustainability—all grounded in ancestral knowledge and practices deeply woven into the livelihoods of family farmers.



The background of the entire graphic is a photograph of several metal shelves in a storage room. The shelves are filled with numerous clear plastic bottles of various sizes, each packed with different types of seeds. The seeds vary in color, including dark brown, light brown, green, and yellow. Many of the bottles have white labels with red and blue text and logos. The shelves are arranged in rows, creating a sense of depth and abundance of seed storage.

Of those interviewed (875 CBCS):

12,6% of the seed banks and houses commercialize their seeds

7% do so for public seed procurement and distribution programs

53%

express interest in participating in this type of initiative

93%

stated they were unaware of funding lines dedicated to purchasing heirloom seeds



Young Biodiversity Guardians

Fartura Lauro Chaves dos Santos Seed Bank

Municipality: Pedro II, Piauí (PI)

The Fatura Lauro Chaves dos Santos Seed Bank was founded on July 20, 2024, in the Pedra Branca Settlement, located in the municipality of Pedro II, state of Piauí. The initiative represents the realization of efforts inspired by the 2021 establishment of a community agroecological home garden, created in partnership with the Federal University of Delta do Parnaíba (Universidade do Delta do Parnaíba), which conducted agroecology projects engaging the children of local farmers.

Building on these activities, which included seedling production, local children spearheaded the creation of the group “Crianças Ativas em Ação” (Active Children in Action), responsible for planning and implementing the seed bank.

In just one year of operation, the 12 young guardians (aged 7 to 14) have ensured the storage, conservation, and multiplication of three varieties of corn, alongside beans, rice, sesame, and gourds. In their first harvest, the seed bank’s multiplication field produced 90 kilograms of beans and nearly 40 kilograms of husked rice. The children also contribute to conserving native tree species, including mungulu, jatobá, ipê, and pau d’arco, among others.

Supported and coordinated by farmer Solange Chaves, the youth used the momentum from building the Fatura Lauro Chaves dos Santos Seed Bank to launch an agroecology school. Daily, outside of regular school hours, these young guardians engage in educational and playful activities that teach the principles of Living with the Semi-Arid while fostering youth leadership and agency.

The Fatura Lauro Chaves dos Santos Seed Bank receives technical assistance from the Regional Center for Advisory and Training (Centro Regional de Assessoria e Capacitação - Cerac).





Seed Commercialization

Smallholders' Cooperative of Community

Seed Banks (Coppabacs)

Municipality: Delmiro Gouveia, Alagoas (AL)



The Smallholders' Cooperative of Community Seed Banks (Cooperativa de Pequenos Produtores Agrícolas dos Bancos Comunitários de Sementes - Coppabacs) was established in 1996 in Delmiro Gouveia, Alagoas, to collectively store and market its members' surplus production. The cooperative's work spans 54 rural communities across 20 municipalities in the backlands (sertão) of Alagoas, directly benefiting over 1,000 family farming households through heirloom seeds, known locally as "seeds of resistance" (sementes da resistência).

Coppabacs' community seed banks serve as collective repositories for genetic material used in field planting, guaranteeing food and crop production for member farmers. Beyond seed storage and selection, the cooperative manages a community field (roça comunitária) where crops well-suited to the semi-arid climate of Alagoas are sown. The cooperative also provides testing for transgenic contamination and capacity-building workshops for local seed guardians.

Coppabacs was one of the lead organizations behind the drafting of a bill to establish Alagoas' state program for community seed banks. This advocacy work culminated in the passage of State Law No. 6,903 of January 3, 2008, which regulates government Seed Program and formally integrates "seeds of resistance" into the official seed distribution system of Alagoas.

At the federal level, Coppabacs has participated in public calls under the Food Acquisition Program (Programa de Aquisição de Alimentos - PAA) to commercialize heirloom seeds through the National Supply Company (Companhia Nacional de Abastecimento - Conab) since 2007.





Recommendations Based on the Study of Community Seed Banks and Houses

The data demonstrate that, to ensure the continuity and enhancement of these initiatives, it is essential to resume structural public policies backed by technical support, financial investment, and inter-institutional coordination. The following strategic recommendations are addressed to different institutional levels:

1. Recommendations to the FAO

- Integrate the results of the Community Seed Banks and Houses assessment as a reference framework for future calls for proposals and territorial actions by the FAO in Brazil.
- Assist in establishing CBCS networks across Latin America, fostering knowledge exchange and the integration of food sovereignty policies.
- Promote international technical cooperation programs aimed at valuing agrobiodiversity and adapting to climate change.
- Exert efforts to advance implementation of the Declaration on Farmers' Rights in Brazil, using local strategies for the use and conservation of heirloom seeds across territories as a benchmark.
- Formally recognize and support the strategic role of CBCS in addressing climate change, expanding collective conservation efforts for local agrobiodiversity.

2. Recommendations for MDA, MDS, MMA, CONAB, BNDES, and the Banco do Brasil Foundation

a) Funding and Financing

- Include Community Seed Banks and Houses within the scope of foundational public programs focused on combating hunger and driving sustainable development.
- Finance production and procurement programs for heirloom seeds, guaranteeing access to institutional markets such as the Food Acquisition Program (PAA) and the National School Feeding Program (PNAE).
- Prioritize agroecological and agrobiodiversity conservation initiatives in specific public funding calls through programs such as Da Terra à Mesa, Ecoforte, Redes Territoriais, Pronaf B Agroecologia, and the National Research and Innovation Program for Family Farming and Agroecology.
- Strengthen and expand support strategies for the PAA - Doação Simultânea/Sementes (Simultaneous Donation/Seeds), ensuring its long-term continuity and broader reach.

b) Infrastructure

- Support the water and energy infrastructure of CBCS facilities by integrating social technologies for rainwater harvesting, solar power, cold storage rooms, and simplified irrigation systems.
- Incentivize the installation of community-level grain and seed processing units, opening new market opportunities and reinforcing healthy dietary habits.
- Foster knowledge-sharing exchanges among seed banks and houses, encouraging the formation of interconnected territorial networks.

c) Research, Innovation, and Genetic Protection

- Incorporate seed testing and certification mechanisms into public programs to protect heirloom varieties against transgenic contamination, mitigating the high costs currently



borne by peasant families.

- Align CBCS priorities with the strategies of the National Policy for the Conservation and Sustainable Use of Genetic Resources (RGen+Sustentável), with an emphasis on on-farm (heirloom seeds) and in-situ (sociobiodiversity) conservation strategies.
- Value and expand innovations in the collection, selection, and storage of native seeds, as well as the production of Caatinga seedlings.
- Include Caatinga seeds and heirloom livestock breeds (animais crioulos) in programs focused on recovering and valuing agrobiodiversity.

d) Social Inclusion and Recognition

- Promote public policies that recognize and fund the work of seed guardians as providers of agroecosystem services.
- Involve rural youth, trained in federal institutes, technical schools, and universities, in agrobiodiversity projects, helping mitigate rural exodus and expanding youth-focused policies.
- Stimulate territorial seed networks in coordination with NGOs, universities, and social movements.
- Promote national awareness campaigns to value agrobiodiversity and peasant agriculture adapted to the Semi-Arid.

3. Recommendations for Embrapa and Other Research Institutions

- Coordinate strategies for the protection and multiplication of heirloom varieties across Community Seed Banks and Houses (CBCS).
- Support the creation of local networks for seed quality testing and genetic analysis, ensuring open-access data is available to communities.
- Establish technical cooperation agreements with ASA partner organizations and seed guardian farmers.

- Carry out agroecological studies on local varieties and their adaptability to climate change.
- Permanently integrate the demands of the CBCS into Embrapa's institutional policies and programs, ensuring continuous technical and organizational advisory support.

4. Commitments of AP1MC / ASA

- Enhance technical support to deepen the analysis of the collected data.
- Organize a results dissemination workshop, ensuring broad participation from local organizations.
- Provide the Redeser Project with communication materials on Semi-Arid heirloom seeds and systematized diagnostic data.







Organização das Nações Unidas
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