



Equator Initiative Case Studies

Local sustainable development solutions for people, nature, and resilient communities

UNDP EQUATOR INITIATIVE CASE STUDY SERIES

Local and Indigenous communities across the world are advancing innovative sustainable development solutions that work for people and for nature. Few publications or case studies tell the full story of how such initiatives evolve, the breadth of their impacts, or how they change over time. Fewer still have undertaken to tell these stories with community practitioners themselves guiding the narrative. The Equator Initiative aims to fill that gap.

The **UNDP Equator Initiative**, supported by generous funding from the Norwegian Agency for Development Cooperation (NORAD) and the German Federal Ministry for Economic Cooperation and Development (BMZ), awarded the Equator Prize in 2022 to 10 outstanding Indigenous and local communities from 9 countries. The winning organizations showcase innovative, nature-based solutions for tackling biodiversity loss and climate change. Selected

from a pool of over 500 nominations from 109 countries, the winners were celebrated at a high-profile event on November 30, in between the climate change and biodiversity negotiations at COP15 and COP27. The event was part of the **Nature for Life Hub**, a three-day series of virtual events designed to raise ambition for nature-based solutions in global biodiversity and climate policy. The winners are sustainably protecting, restoring, and managing forests, farms, wetlands, marine ecosystems, and biodiversity to mitigate greenhouse gas emissions, help communities adapt to climate change, and create a green new economy.

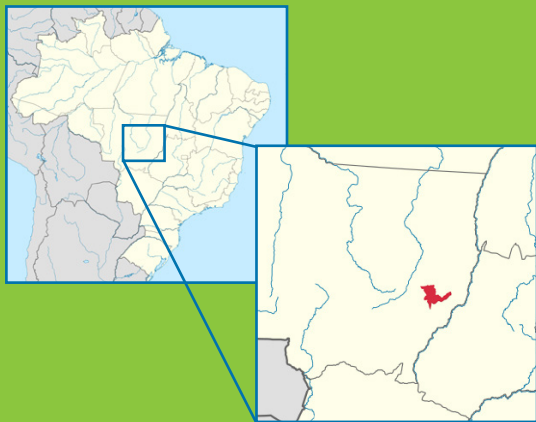
The following case study is one in a growing series that describes vetted and peer-reviewed best practices intended to inspire the policy dialogue needed to scale nature-based solutions essential to achieving the Sustainable Development Goals (SDGs).



PROJECT SUMMARY

The Associação Rede de Sementes do Xingu (Xingu Seed Network Association or ARSX by its acronym in Portuguese) is the largest and most diverse seed collection network in the Federative Republic of Brazil. The non-governmental organization involves more than 600 people, 76 percent of whom are women, organized into 25 collective groups that include Indigenous communities as well as agricultural and urban communities in the Xingu, Araguaia, and Teles Pires river basins in the state of Mato Grosso. Throughout its 16-year history, the members of ARSX have collected, sold, and distributed 220 native seed species in mixed batches of seeds called *muvuca* for large-scale ecological reforestation efforts in the Amazon and Cerrado. It was estimated that by 2022, the seed *muvuca*s of the Xingu Seed Network had contributed to the restoration of approximately 8,800 hectares of previously degraded areas.

The ARSX model helps safeguard community livelihoods and Traditional Ecological Knowledge, develop local value chains, and recover degraded forests based on a socio-economic approach that values the standing forest. ARSX partners with local research institutions, such as the Seed Laboratory at UNEMAT/Nova Xavantina, to evaluate the behaviour and quality of its seeds, combining technical and local knowledge. ARSX is a nexus for the restoration of the Amazon and Cerrado in Brazil based on its innovative approach, focused on the well-being of the territories it works with, promoting an ecological restoration model that strengthens the base and participation of Traditional communities and dedicating itself to the adaptation and continuous improvement of the direct seeding process. With this, ARSX's work has become a benchmark for other seed networks and restorers in Brazil, demonstrating the vast potential of native seed initiatives.



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KEY FACTS

Equator Prize winner

2022

Founded

2007

Location

Nova Xavantina, Mato Grosso, Federative Republic of Brazil

Beneficiaries

661 direct beneficiaries in 2023; at least 2,644 indirect beneficiaries

Thematic areas

Forest conservation/sustainable development; Natural climate solutions; Sustainable land management

Fields of work

Plant nursery or seed bank; Ecosystem restoration; Community-based financial mechanism

Sustainable Development Goals addressed



EQUATOR PRIZE 2022 WINNER FILM





BACKGROUND AND CONTEXT

“For most people, it is very difficult to imagine other ways of living. Our imagination is so colonized that we can only believe that there is a right way of being in the world. Nevertheless, that seems to be completely wrong. How can our global trajectory be right if it destroys ecosystems, destroys forests, ignores nature, alters the climate, and creates conditions for outbreaks of deadly diseases? This way of being in the world does not respect diversity, does not know the good measure between the production of life and death and will certainly destroy us. It is necessary to bet on alternatives, and it is necessary to end the prejudice, discrimination, and racism that condemns local communities, family farmers, and Indigenous Peoples.”

The experience of the Xingu Seed Network is a living example of another way of being in the world. Inspired by diversity, it shows that the forest is not a mere collective of trees, just as forest restoration is not done only by adding plantations. The Xingu Seed Network’s job is to rebuild places entirely, giving them back their souls by re-establishing the space for spirits to dwell there again, and with them, small insects, mushrooms, birds, earthworms, roots, geckos, and caterpillars, dragonflies, and spiders—life in its entirety.

Those involved in the Network are part of groups considered historically peripheral, which makes the reproduction of their ways of life a constant struggle. Being in the Network means more income, to be sure, but it also means having more voice, being elevated to the protagonist of one’s own destiny, and reframing what is peripheral and central. At the Xingu Seed Network, we ask, ‘how is it possible that the forest and its Peoples are on the margins of the world? What could be more central?’”

— Nurit Bensusan, Advisor and Biodiversity Expert, Socio-Environmental Institute (ISA)

The state of Mato Grosso, in the midwest of the Federative Republic of Brazil, is home to expanses of three of the world’s richest and most biodiverse biomes: the Amazon rainforest, the Cerrado savannah, and the Pantanal wetlands. These extensive ecosystems are paramount for protecting global biodiversity, maintaining a stable global climate, and preserving vital natural resources, like clean air and water, for local communities. The Amazon, the largest rainforest on Earth, is home to about 30 percent of the world’s species, more plant and animal species than any other terrestrial biome on the planet. The Cerrado is Brazil’s second-largest biome, after the Amazon rainforest. A large savannah known as an upside-down forest for its deep hidden roots with immense carbon stores, the Cerrado is recognized as a global biodiversity hotspot by the Critical Ecosystem Partnership Fund (CEPF).

Mato Grosso’s Amazon and Cerrado landscapes are both culturally and ecologically important. Noted wildlife species include jaguars (*Panthera onca*), giant anteaters (*Myrmecophaga tridactyla*), giant armadillos (*Priodontes maximus*), giant otters (*Pteronura brasiliensis*), lowland tapirs (*Tapirus terrestris*), hyacinth macaws (*Anodorhynchus hyacinthinus*), and marsh deer (*Blastocerus dichotomus*). The International Union of Conservation of Nature (IUCN) Red List of Threatened Species has classified these species with a threatened status, with the giant otter (*Pteronura brasiliensis*) being officially at risk of extinction. Nut varieties, which are plentiful forest foods, include 40 varieties of peanuts, as well as the baru almond (*Dipteryx alata* Vogel), a healthy source of vitamins and nutrients with significant and growing commercial value. Within this great diversity, there is the Xingu pequi (*Caryocar*

brasiliense Cambess), which is one of the region's most culturally important native fruit. The pequi's large fruit, rich in sweet yet mild pulp, is used in local dishes, including pequi porridge, and is an important food source for birds and mammals.

Despite having such biologically rich ecosystems, Mato Grosso has become one of Brazil's most aggressively deforested states, affecting wildlife habitats, communities, and natural resources. A primary contributor to deforestation has been the growth and advancement of agriculture and agribusiness: Mato Grosso now produces more soybeans and cattle than any other state in Brazil. The consequences of large-scale agricultural operations are widespread. Since 2000, an area the size of Denmark has been deforested across the state's Cerrado. Similarly, the tropical forests of Mato Grosso's Amazon biome reached the highest rate of deforestation in March 2022, leading all other Brazilian states in the felling of trees in the Amazon. While the Pantanal, the world's largest wetland ecosystem, located in the southeast of Mato Grosso, has

mostly evaded agricultural deforestation, the runoff from agrochemicals upstream, may be contributing to contaminated waters and scarcity of fish.

According to the Brazilian Institute of Geography and Statistics (IBGE), more than 3.6 million people live in Mato Grosso, which covers over 90 million hectares. The state is home to 40 groups of Indigenous Peoples, whose territories comprise about 16 percent of the land area. Traditional livelihoods of Indigenous Peoples and local communities include agriculture, livestock, fishing, harvesting, and production of consumer goods. With a long history of cultural value for nature, Indigenous Territories (ITs) in the region have become a significant force of resistance to deforestation. One such Territory is the Xingu Indigenous Territory, in the northeast of Mato Grosso, where community members launched actions to collect seeds and reforest streams and degraded lands, culminating in the creation of the largest seed network in the nation.

Origin and structure

In 2004, in response to disastrous deforestation in their region, Chiefs and Elders of the Xingu Indigenous Territory united in partnership with the Socio-Environmental Institute (ISA) to launch a campaign called *Y Ikatu Xingu* (Save the Good Water of the Xingu in the Kamayurá language). The campaign achieved unprecedented support leading to reforestation. By helping local communities collect seeds and replant native flora around springs and streams of the Xingu River Basin, water quality and availability improved throughout the region.

To continue their efforts more permanently, in 2007, a technical team together with community seed collectors formed the Associação Rede de Sementes do Xingu (Xingu Seed Network Association or ARSX by its acronym in Portuguese) with the aim to protect and recover the Cerrado and Amazon ecosystems in Mato Grosso. Since then, ARSX has supported the livelihoods of local seed collectors, protected territory lands and waters from deforestation, and contributed to Indigenous Peoples and local communities' leadership in addressing social, economic, and environmental injustices. The vision of the Xingu Seed Network Association is to see native forests and watersheds return to abundance. ARSX also aims to be an inspiration for ecological restoration in other biomes and regions of Brazil and the planet.

In 2014, with new groups of collectors and continued growth, the Xingu Seed Network Association was legally formalized as a non-profit association, allowing it to increase its marketing of seeds, register collectors, apply for project and activity support from partner organizations, and carry out independent financial transactions without the assistance of other organizations. Today, ARSX is Brazil's largest and most diverse seed collection network for Amazon and Cerrado reforestation, with more than 600 people from Indigenous, rural, and urban communities working towards the effort. Among its members, 76 percent are women. Additionally, 60 percent of seed collectors are Indigenous, representing the Ikpeng, Kawaiwete, Matipu, Xavante, Wauja, and Yudja Peoples from the Marãiwatsédé, Pimentel Barbosa, and Xingu Indigenous Territories in the Amazon and the Cerrado biomes of Mato Grosso.

The Xingu Seed Network Association structure is made up of collecting groups, macro-groups, a Steering Committee, and an Executive Board. Collection groups are groups of seed collectors from one community or territory. Macro-groups are conglomerates of collection groups based on three land types: Indigenous, agrarian, and urban. The Steering Committee contains two representatives from each macro-group to monitor all network activities, decide on the entry of new collection groups and research

projects, and implement communications strategies. The Executive Board, whose members are elected every three years at the Annual Assembly meeting, guides the organization. At the local level of collector groups,

decisions are made horizontally and equitably among members. At the Network-wide level, decisions are made during Annual Assemblies with at least two representatives from each collecting group present.

“The Ikpeng Peoples believe that when a relative dies, he returns to life in the form of a tree. I once dreamed that a tree sang to me that if Yarang women liked to collect seeds, they would be seeds too. Today we sing this song on the way to collecting seeds, which we do together.”

— Kuripo Ikpeng, Indigenous Woman Seed Collector
in the Yarang Women’s Movement





LOCAL CHALLENGES

Deforestation

According to the National Institute for Space Research (INPE), Mato Grosso is the third-most deforested state in Brazil. Between August 2021 and July 2022, Mato Grosso lost 190,600 hectares of Amazon rainforest, representing 16.5 percent of all Amazonian deforestation. Likewise, since 2000, the state has lost 12 percent of the Cerrado to industrial agricultural plantations. Despite being one of the world's largest hotspots, the Cerrado has received the lowest level of protection, about eight percent, according to the Critical Ecosystem Partnership Fund (CEPF).

The primary driver of deforestation in Mato Grosso is the expansion and advancement of large-scale commodity monocultures, particularly soybean and beef. Clearing forests for these large agricultural operations has rapidly propelled deforestation. Between 2000 and 2014, Mato Grosso became the state with the most new cropland in Brazil, representing 26 percent of all cropland expansion in the country, predominated by soybeans. Illegal logging, infrastructure development, land speculation, and land

grabbing also contribute to the degradation and clearing of natural ecosystems.

Deforestation causes biodiversity loss and threatens endemic and globally important species. Threatened species in Mato Grosso include the jaguar (*Panthera onca*), giant anteater (*Myrmecophaga tridactyla*), giant otter (*Pteronura brasiliensis*), lowland tapir (*Tapirus terrestris*), and hyacinth macaw (*Anodorhynchus hyacinthinus*).

Deforestation also reduces the essential services provided by Amazonian and Cerrado ecosystems like air filtration, water filtration, and climate regulation. Both Amazon rainforests and Cerrado savannahs act as massive carbon sinks, sequestering greenhouse gases (GHGs) and regulating global climate patterns. Cerrado forests and shrublands are often called upside-down forests because they contain extremely deep soils with extensive root systems that sequester and store carbon.

Land grabbing

Land grabbing in Indigenous Territories has long been a problem in the region. It is defined as the unauthorized or illegal occupation and exploitation of land. Such practices can be accompanied by violence, coercion, deliberate deforestation or burning of lands. The pattern of land grabbing comes from a long history of non-Indigenous occupation of Mato Grosso, dating back to Portuguese colonization when the occupation of large estates called *latifundios* established the roots of land injustice in the region.

Despite efforts for agrarian reform, the pattern of land inequality remains. Today, 50 percent of Brazilian land is owned by just one percent of the population. This history of land-ownership concentration and inequality has left many rural communities with insecure land tenure, mak-

ing them vulnerable to land-access conflicts. Inadequate or weak land governance, including insufficient land registration systems and unclear land tenure arrangements, continues to create opportunities for the occupation of Indigenous lands and land grabbing.

Indigenous communities in Mato Grosso have experienced land occupation and forced removal throughout history. During the 1960s, with the takeover of a military dictatorship, the Brazilian government intentionally occupied and developed forested areas in the north of the country, fearing a lack of control over the nation. This initiative terrorized Indigenous communities and devastated forests. In 1966, about 250 Xavante People, inhabitants of the Marãiwatsédé Territory in Mato Grosso, were removed and sent 500 kilometres from their Territory. There,

Salesian priests promoted the catechization of Indigenous culture and exposed Indigenous communities to measles. Indigenous survivors fled, living as refugees on roadsides, starving, and being threatened and even murdered. In the early 2000s, the federal government finally recognized the original land of the Xavante People. However, by that time, about 75 percent of the forest of their Territory had been destroyed, making it the most deforested Indigenous land in the Legal Amazon. In 2013, a federal operation was carried out to guarantee the return of land to the Xavante People. More than 500 illegal land grabbers have occupied the land illegally for over two decades, and the situation persists.

Political will

Since the 1970s, the state of Mato Grosso has focused its economy on agricultural production, mainly soy, corn, cotton, and cattle, supported by the government's agricultural policies. Despite changes in government, agricultural producers have enjoyed privileged property rights without facing repercussions for expanding their activities into protected or Indigenous areas. During the previous federal government, from 2019 to 2022, the environmental inspection agency responsible for monitoring illegal deforestation on rural lands was dismantled. Additionally, efforts were made to enact legislation to relax land use regulations.

There is a constant threat of illegal occupation to expand agriculture, logging, and other illicit activities on the land used by the Associação Rede de Sementes do Xingu (Xingu Seed Network Association or ARSX by its acronym in Portuguese). Moreover, there are cases of violence and political pressure against the demarcation of Indigenous lands. Currently, land use around the Xingu region mainly

Today, Mato Grosso has the most land grabbing and land conflicts in Brazil, with the expansion of agricultural profits being the main driver. The use of fire has become a common practice to take land in the Cerrado of Mato Grosso. During the dry season, land grabbers are known to set deliberate forest fires to clear land, build pastures, and safeguard lands long enough to claim tenure. Agrarian reform settlements have become particular targets for the practice, which is criminal under Brazilian law. These areas of promised land for landless farmers are inhabited by families struggling with few resources to defend their right to the land, making them vulnerable to landowners with more resources looking to take over.

involves cattle ranching and monoculture. This stands in stark contrast to the Xingu's conservation area, which is protected by a continuous corridor of 21 Indigenous lands and nine conservation units of different categories. As a result, the various seed-collecting groups within the ARSX are under significant pressure.

Even more, a bill is currently being processed that would exclude the state of Mato Grosso from the Legal Amazon. If passed, the bill would reduce the area of natural land cover required to be maintained by each landowner. While just 20 percent of natural land cover must be maintained outside the Legal Amazon, significantly higher rates—80 percent in forested areas, 35 percent in Cerrado areas, and the same 20 percent in general fields—are required inside the Legal Amazon. Policies in support of massive growth in agribusiness have advanced deforestation rapidly in the state with consequences to local ecology, Indigenous livelihoods, and long-standing culture.

Pollution

Infrastructure developments, including mining and hydropower, have led to pollution in Mato Grosso. The Belo Monte hydroelectric power plant, for example, has negatively affected communities in and around the Xingu Indigenous Territory. The dam disrupts the Xingu river's natural flow, alters aquatic ecosystems and fish migration patterns, and impacts local communities' food security. Environmentally, increased sedimentation has affected water quality and the availability of clean water for Indigenous communities. During the plant's construction, industrial machinery and activity may also have released pollutants and left waste materials in the natural environment. Dam flooding resulted in the loss

of sacred land and cultural sites. It also displaced many communities in this area, affecting their social and cultural traditions and livelihoods.

Sanctioned and illegal mining operations have also become common in Mato Grosso. These operations lead to the pollution of rivers through mercury contamination. Mercury affects the health of Indigenous Peoples and local communities that rely on fish as a food source. Mining operations have particularly affected the Xingu River basin, while the construction of Belo Monte and subsequent river flow changes could exacerbate mercury pollution.

Climate change

Climate stress affects native flora and fauna, including forest products that local and Indigenous communities depend on for sustenance and livelihoods. For example, during the September 2022 dry season in the Nova Xavantina region of Mato Grosso, Xingu Seed Network collectors noticed that pequi mother trees were aborting their fruits weeks before they grew and ripened. Pequi tree fruit, highly valued by Indigenous communities, grows in

the Cerrado and transitional zones between the Cerrado and Amazon biomes.

Of concern to global climate stability, deforestation contributes to the release of carbon and reduces carbon storage capacity. Protecting forests as carbon sinks is critical to mitigating global climate change.





LOCAL RESPONSES

“Seed collectors are encouraged to name their collector groups. The Yarang Women’s Movement, formed by Indigenous Ikpeng women, is inspired by the work of Yarang ants (leafcutters). Yarangs are always walking together in the forest, collecting and carrying seeds to the anthill, removing the pulp from the fruits and leaving the embryos of the plants in perfect conditions so that they germinate with strength and health and, thus, complete the healthy cycle of life on the planet.”

— Oreme Ikpeng, Spokesperson, Xingu Seed Network Association

Supplying native seeds for ecological restoration

Journeying through Cerrado landscapes and into Amazonian forests, Xingu seed collectors of the Associação Rede de Sementes do Xingu (Xingu Seed Network Association or ARSX by its acronym in Portuguese) use Traditional Ecological Knowledge (TEK) to identify and gather fruits from diverse native trees and plants, often transporting heavy loads of fruits long distances. These extensive and rugged seed expeditions, called *dzomorís* by some Indigenous groups, require exceptional seed collection knowledge and navigation skills. Having grown accustomed to the climate and terrain, the seed collectors are highly efficient and effective, contributing to significant native reforestation.

After hauling baskets back home, collectors process the seeds and prepare them to be added to native seed mixes called *muvuca*, meaning crowd or mixture in Portuguese. A *muvuca* contains a mixture of different native seeds with different life cycles and functions, strategically and scientifically designed to restore a piece of land and turn

it into a forest in the future. Once collected, the seeds are taken to one of ARSX’s three Seed Houses, where the embryos of different Amazon and Cerrado species, including species of green manure, are stored at ideal temperatures and humidity for a few months before planting seedlings for sale. The Seed Houses are located in Canarana, Nova Xavantina, and Porto Alegre do Norte. In addition, ten more pre-storage Houses can be found in different collection territories. Every year, about 30 tonnes of seeds pass through these facilities before being sent to no-till agricultural and agroforestry operations.

At this stage, the quality and behaviour of specific seed lots is also assessed by the Seed Laboratory of the State University of Mato Grosso (UNEMAT/Campus Nova Xavantina). Thanks to partnerships with universities, government agencies, and other scientific and environmental organizations, ARSX supports laboratory research into the quality and effectiveness of native seeds, which helps them to further improve their practices,

strengthen their impact, and amplify their message about reforesting native forests.

While some of the seeds collected are destined for restoration actions in the collection territories themselves, most of the *muvuca* made by ARSX is marketed to large companies and organizations carrying out reforestation efforts. These efforts are encouraged by the Brazilian Forest Code, which was updated in 2012 to include multiple policies requiring large companies to reforest previously deforested areas and offset their environmental impact by engaging in reforestation measures. Thus, the *muvuca* mixture is directly planted in the soil of degraded areas, a technique that has revolutionized reforestation in Brazil, helping to facilitate a speedy recovery of native flora and fauna while generating income and well-being for local communities.

United by the ARSX's vision, seed collectors work together across the region, organized in 25 seed collecting groups that include: 12 in Indigenous communities, 10 from family farming, and 3 mixed groups with urban and rural collectors. Leading the seed collecting effort, Indigenous

Peoples make up 60 percent of seed collectors, representing six Indigenous communities (Ikpeng, Kawaiwete, Matipu, Wauja, Yudja and Xavante) of the Marãiwatsédé, Pimentel Barbosa, and Xingu territories. Seed collectors from these areas have helped the Xingu Seed Network Association become the most extensive native seed supplier in Brazil.

For Xingu seed collectors, the motivation to embark on such lengthy and arduous journeys is the opportunity to heal devastating ecological damage in the Cerrado and Amazon and, subsequently, the world's climate system. In 2023, ARSX had 647 seed collectors, who collected more than 28 tons of seeds throughout the year. The income from selling these seeds through the Network provides sustainability to the initiative and helps bring economic benefits to local communities, as collecting is a source of income for everyone who collects seeds. Since launching, ARSX seed collectors have gathered more than 220 different species of seeds and sold more than 353.5 tonnes of *muvuca*, generating approximately US\$1.4 million. The *muvuca*, sown directly into the soil, has already contributed to the restoration of more than 8,800 hectares of previously degraded areas.

KEY IMPACTS

Supplying native seeds for ecological restoration

- In 2023, ARSX had 647 seed collectors, who collected more than 28 tons of seeds throughout the year.
- In its 16-year history, more than 220 species of seeds have been collected and more than 350 tons of *muvuca* have been sold.
- More than 8,800 hectares of Cerrado and Amazon have been restored with ARSX seeds.



Strengthening Indigenous and local communities

As a grassroots initiative launched by Chiefs (Elders) of the Xingu Indigenous Territory, Indigenous Peoples and local communities are deeply involved in the mission of the Xingu Seed Network Association. For Indigenous and local community members, leading seed expeditions and supporting restoration work strengthens their connection and belonging to the land. The activities also serve as acts of resistance to land grabs and deforestation that continue to destroy local ecosystems. For women of ARSX, the work also supports the fulfilment of the traditional Indigenous women's role of protecting native seed knowledge and passing it to the next generation.

Participating in seed collection also provides tangible economic benefits for communities, including providing supplemental income and access to finance. Collectors who wish to increase and improve seed production or launch a restoration project can join groups to access a collective microcredit programme called the Solidarity Revolving Fund, which is exclusive to the collectors of ARSX. This fund offers loans to purchase materials and inputs for collecting, handling, transporting, and storing seeds. It also provides resources for agroforestry projects in collector territories. Since the Solidarity Revolving Fund launched in 2012, collectors have accessed almost R\$390,000 Brazilian Reals,

equivalent to approximately US\$70,000, of financing. By 2022, the money had served 47 projects, benefiting 200 families in 49 groups.

The Xingu Seed Network Association also provides communities with opportunities to exchange knowledge and skills. For example, annually, ARSX conducts training events, courses, advocacy campaigns, and workshops on subjects like the *muvuca* technique for reforestation, agroforestry systems, Amazon and Cerrado ecosystems, and Traditional Ecological Knowledge (TEK). During 2022, ARSX organized 15 events, conducted 13 *muvuca* planting task force meetings, and held two courses on *muvuca*. They also published a management guide called the 'Collector's Book' that shows the strategies and processes of ARSX.

Moreover, in 2022, ARSX created 13 demonstration forests planted by seed *muvuca*. These plots restored six hectares of degraded plantation lands and supported a major educational campaign on the benefits of *muvuca* strips on agricultural and agroforestry lands in local communities. Many local and Indigenous farmers in the territories occupied by seed collectors have adopted the method.

Finally, the activities carried out by ARSX are particularly important for young people, who face the dilemma of leaving for jobs in bigger cities, the Xingu Seed Network Association has helped offer tangible skills and support the development of local, sustainable economic activities. In 2022, ARSX published the 'Writings of the Youth of the Xingu Seed Network' a compilation of letters and ancestral stories narrated by the youth of ARSX.

KEY IMPACTS

Strengthening Indigenous and local communities



- Nearly R\$390,000 Brazilian Reals, equivalent to approximately US\$70,000, of financing has been provided from 2012 to 2022.
- During 2022, 15 education events were held.
- During 2022, two books were published.
- ARSX has established 13 ecological demonstration plots, totaling six hectares restored in seed collection territories.



Empowering local and Indigenous women

Women comprise the majority of the Xingu Seed Network Association, representing 76 percent of the people taking part in the initiative. The interest of women in local flora and seed protection comes from a long history of women taking on this role within Indigenous communities. Indigenous women in the region tend to be experts in edible plants for food and medicine, passing this knowledge on to the next generation.

Through ARSX, women use their expertise and passion for plants as leaders in seed collection and reforestation. For the women seed collectors, this role has also helped them to find financial independence and improve their lives. With the money generated from the seeds, women seed collectors can buy clothes, shoes, food, vehicles such as bicycles, motorcycles, cars, and trailers, and even real estate, such as houses and farms. In addition, two collectors have particularly excelled in business, founding ecological restoration companies with seed *muva* in their regions of operation, in São José do Xingu and Santa Cruz do Xingu, in the north of Mato Grosso.

Two exclusively women-powered groups are making an impact on the movement. One is the Yarang Women's Movement, formed in 2009 by 15 women. The group made its first seed delivery that year with assistance

from two Indigenous consultants from the *Y Ikatu Xingu* campaign. Since then, the Yarang group went on to grow and gain more members and supporters interested in collecting seeds, restoring forests, and earning income. Today, the Yarang Women's Movement is composed of 83 women. Three of those women have become leaders with decision-making power in the Ikpeng Nation in the Xingu Indigenous Territory.

Another example of women empowering the seed collection movement is the *Pi'õ Rómnhã Ma'ubumrõ'i'wa* (Xavante Women Seed Collectors) group founded in 2011 by 96 Xavante women collectors from 11 villages of the Marãiwatsédé Indigenous Territory (IT). Shortly after the group was established, the Xavante regained the Marãiwatsédé IT, a territory taken from them by force 50 years earlier. After recovering access to the land, the Xavante found much of the land deforested. They began a passionate pursuit to rescue the Elders' knowledge, collect seeds, plant fruits, recover springs, and restore the ecosystem. In 2021, *Pi'õ Rómnhã Ma'ubumrõ'i'wa* broke a record by delivering 1.7 tonnes of native seeds for ecological restoration and generating an income of R\$38,570 Brazilian Reals, equivalent to approximately US\$7,000.

KEY IMPACTS

Empowering local and Indigenous women

- Women make up 76 percent of the ARSX seed collection workforce.
- Two collecting groups are exclusively comprised of women.
- The *Pi'õ Rómnhã Ma'ubumrõ'i'wa* delivered a record-breaking 1.7 tonnes of native seeds during in 2021, generating income equivalent to approximately US\$7,000.





POLICY IMPACTS

National policy impacts

The Associação Rede de Sementes do Xingu (Xingu Seed Network Association or ARSX by its acronym in Portuguese) influences policy at local and national levels. For example, ARSX participates in dialogues with the National Commission on Seeds and Seedlings in the Brazilian Ministry of Agriculture (MAPA) to improve native seed production regulations and the implementation of environmental laws. In Mato Grosso, ARSX works with its partners to promote environmental policies that

support native seed markets. They also work on state-level protocols for the direct sowing and monitoring of the native seed mixes *muvaçu*. The municipality of Canarana in Mato Grosso has become a supportive partner in this pursuit, ceding part of its land for installing an ARSX Seed House and demonstration plot, while also working closely with the Xingu Seed Network Association on seed collection.

Contributions to the global agenda

At the global level, the Xingu Seed Network Association supports the implementation of several critical multilateral agreements, including the [Convention on Biological Diversity](#) (CBD), the [United Nations Framework Convention on Climate Change](#) (UNFCCC), and the [Sustainable Development Goals](#) (SDGs) of the [2030 Agenda for Sustainable Development](#) (2030 Agenda).

By supporting land restoration in the Cerrado and Amazon, the Xingu Seed Network Association supports the goals of climate action (SDG 13) and life on land (SDG 15). By creating more market demand for native seeds, the

Xingu Seed Network Association improves local incomes, advancing progress on the goal of no poverty (SDG 1). Likewise, supporting the incomes and leadership of Indigenous and local women helps progress on the goal of gender equality (SDG 5). ARSX's reforestation work also helps Brazil fulfil its Nationally Determined Contributions (NDCs) to the UNFCCC's Paris Agreement on climate change. Brazil's NDCs include reaching national climate neutrality by 2050, which requires restoring the carbon sequestration power of landscapes like the Cerrado and Amazon.



REPLICATION, SCALABILITY, AND SUSTAINABILITY

“The Equator Prize opens doors to the recognition of the Xingu Seed Network Association as a solution not only for the Amazon and the Cerrado but also for people with nature. A solution that deserves to be increasingly known and replicated in different regions of the planet.”

— Ludmilla Balduino, Former Communication Coordinator,
Xingu Seed Network Association

Replication

The Associação Rede de Sementes do Xingu (Xingu Seed Network Association or ARSX by its acronym in Portuguese) shares its experiences on the web, in print, and through extensive educational events and campaigns throughout the country. This public communication has inspired the creation of other seed networks throughout Brazil. Two of the most predominant have been established primarily by *quilombolas*, Afro-Brazilian communities organized by people who escaped slavery. The Cerrado Seed Network in Goiás, for example, was formed mainly by the Kalunga, a group of 39 traditional *quilombola* communities occupying Cerrado territories in the Chapada dos Veadeiros National

Park. The Ribeira Valley Seed Network, in turn, established in São Paulo was created by *quilombola* communities occupying the Atlantic Forest territories in the Ribeira Valley region.

Local and small-scale reforestation efforts have also been replicated in the territories of Xingu seed collectors, which today include the Marãiwatsédé, Pimentel Barbosa, and Xingu Indigenous Territories. Community members in these territories are beginning to plant *muvaça* forests on their farms or properties after learning from demonstration plots, educational training, and courses.

Scalability

Given ARSX's extensive growth and the replication of its efforts by other Seed Networks throughout the Cerrado and Amazon, the scalability of community-based ecological restoration throughout Brazil could be feasible.

Continued and increased support nationally for ecological restoration and conservation could be key to scaling native and biologically diverse reforestation nationally and beyond.

Sustainability

The Xingu Seed Network Association helps sustain its seed collection operation by conducting commercial planning, marketing, and partnership building. These activities help ensure seed collectors can sell their seeds and contribute

to reforestation efforts. These efforts build income security for Network members and support them in their mission to restore the Amazon and Cerrado forests.

ARSX also procures additional financial resources for organizational-level operations and other projects, like educational events and building demonstration plots. This support comes through partnerships with national and

international institutions and organizations. With these avenues of support and income, the Xingu Seed Network Association has sustained its initiative since 2007 and continued to grow both in size and impact.

FUTURE PLANS

The Xingu Seed Network Association will continue to support ecological restoration efforts in Mato Grosso—seed by seed.

PARTNERS

- **Centro de Pesquisas Ambientais do Nordeste (CEPAN):** Institution similar to ARSX that serves as a partner in education and advocacy.
- **Cerrado de Pé:** Institution similar to ARSX that serve as a partner in education and advocacy.
- **Community associations:** Many community associations support ARSX's relationship with communities. These include Acampaz, Aire, Aisa, AIT, Amora, Atix, ATV, Canarana City Hall, Ceiba Association, Estrela da Paz, Kuyuwi, Matipu, Moygu, Pi'õ Rómnhá Ma'ubumrô'i'wa, Tapawia, and Yarang Women's Movement.
- **Ecosocial Organization of Araguaia (OECA):** Manages the Solidarity Revolving Fund for ARSX collectors.
- **Instituto Socioambiental:** Part of the foundation of ARSX, the institute continues to support ARSX with socio-economic forestry projects and promotes ecological restoration.
- **Operation Native Amazon (Opan):** Connects ARSX to groups of Xavante collectors of the Marãiwatsédé Indigenous Land.
- **Redário:** Institution similar to ARSX that serves as a partner in education and advocacy and supports Brazil's networks in training, business models, and marketing.
- **Rede de Sementes do Cerrado:** Institution similar to ARSX that serves as a partner in education and advocacy for rights to commercialize seeds with the aim of guaranteeing and restoring Brazil's biomes, promoting food sovereignty and permanence on Earth.

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Editors

Amanda Bielawski, Anna Giulia Medri, Veronika Seemann

Writer

Meredith Beaton

Design

Kimberly Koserowski

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Equator Initiative
Sustainable Development Cluster
United Nations Development Programme (UNDP)
304 East 45th Street, 15th Floor
New York, NY 10017
www.equatorinitiative.org

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