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TRANSFORMING THE ECONOMY IN THE AMAZON:

Lessons from Community-Led Initiatives

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Introdution

This publication presents an analysis of six community-led initiatives in the Amazon, organized around practical lessons that address the region's interconnected challenges. These challenges include the advance of deforestation, the intensification of illicit activities, pressure on protected territories, biodiversity loss, barriers to accessing qualified markets, inadequate infrastructure, and the scarcity of economic opportunities that foster local autonomy.

In response to these realities, the initiatives analyzed here highlight the vast potential of the bioeconomy and nature-based solutions, demonstrating how the sustainable management of biological resources, ecosystem restoration, and the strengthening of ethical value chains can generate long-term positive impacts – reconciling environmental conservation with inclusive socioeconomic development.

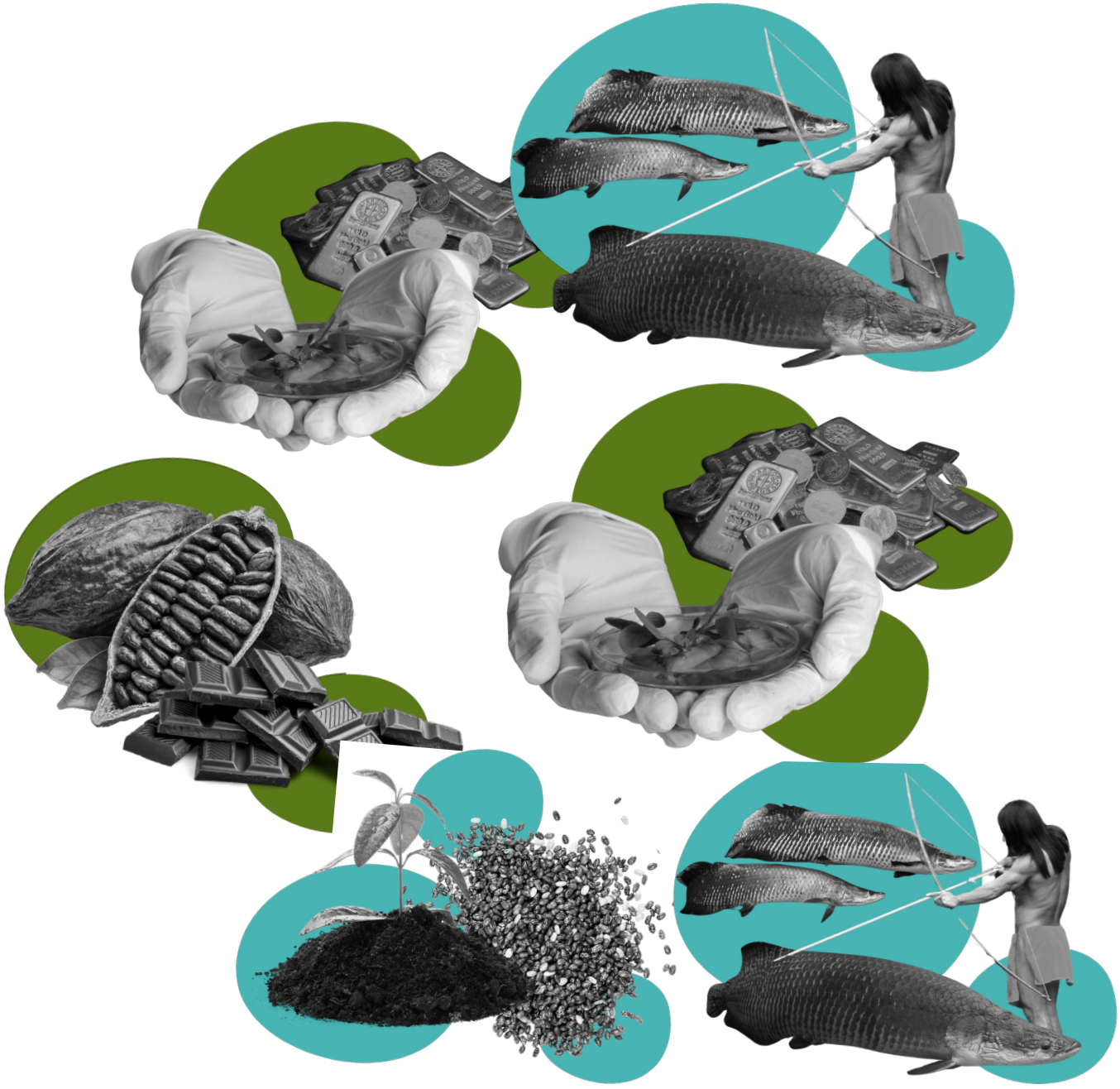
Community involvement is understood as the deliberate effort to include communities in the planning, decision-making, and implementation of actions that directly affect them and their needs. This involvement presumes the construction of partnerships grounded in dialogue and shared responsibility between local populations and their allies – entrepreneurs, experts, or networks that collaborate with them to generate positive social and environmental impact.

The selected experiences illustrate practical lessons by detailing the strategies adopted, the impacts achieved, the challenges faced, and the opportunities for scalability – from local to global. Despite the specificities of each initiative, they share common elements that contribute to transforming territories. These include strengthening community organization, adopting innovative production models, providing technical training, and gaining access to high-value markets. These key factors have proven crucial for creating new economic opportunities and promoting the value of local resources. In different contexts, they help overcome structural barriers, expand local actors' autonomy, and strengthen their ability to respond to socio-environmental challenges.

The case studies address various dimensions of sustainability. **The Ochroma Project** and **Belterra Agroflorestas** demonstrate how regenerative practices can restore degraded areas and generate viable economic opportunities for communities facing high-impact environmental threats. **Carauari Rural Producers Association (Asproc)** and **Kallari Cooperative** reinforce community management and the value of sustainable production chains, ensuring greater autonomy for local producers. Meanwhile, the **Origens Brasil Network** and the **Amaz Accelerator** highlight the role of collaborative networks in expanding ethical markets and creating a supportive ecosystem for impact-driven entrepreneurship.

More than just a catalog of best practices, this publication seeks to identify and systematize lessons that can be adapted and replicated in different contexts, expanding the reach of the bioeconomy beyond the Amazon. By combining traditional knowledge, innovation, and new market dynamics, the initiatives analyzed here demonstrate that it is possible to build more resilient, inclusive, and forest-friendly economic models.

To organize this analysis, the publication is divided into two sections. The first examines the six selected initiatives, highlighting the strategies they adopted, and the lessons learned from their implementation. These experiences offer a snapshot of what has worked in practice, showcasing complementary approaches. The second section outlines a set of recommendations to amplify the impact of these initiatives and create the conditions for new sustainable models to emerge and take root. The recommendations address topics such as technical training, financing, and public policy. The methodology used for selecting and analyzing the cases is detailed in the Annex.



Insights from Successful Initiatives

Lesson 1. Integrating Knowledge and Innovation
Ochroma Project

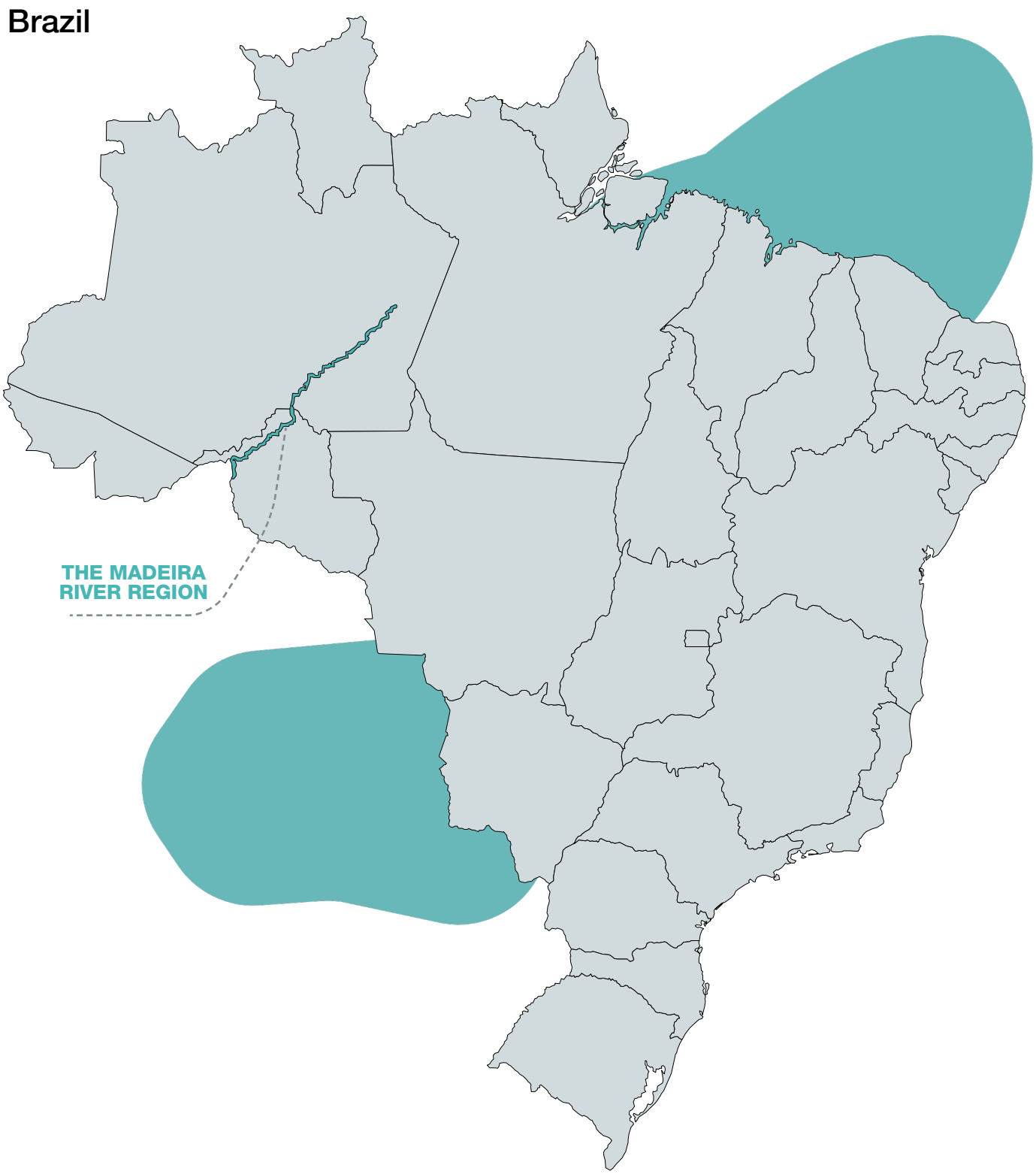
The integration of traditional and scientific knowledge can generate innovative solutions that respond effectively to both global and local challenges. The Ochroma Project shows how replacing mercury in artisanal gold mining, combined with the sustainable cultivation of balsa wood, can become a starting point for a broader economic and environmental transition – supporting community livelihoods, promoting economic diversification, and encouraging regenerative practices.

I. Overview of the Initiative

Dimension		Description
Purpose	→	Develop sustainable solutions to reduce the impact of artisanal mining by replacing mercury with a bioextract derived from balsa wood.
Problem	→	Environmental contamination and health risks faced by Amazonian communities due to mercury use in artisanal mining, along with the undervaluation of small-scale farming and the lack of viable economic alternatives.
Location	→	Communities in the Médio Madeira region, in the state of Amazonas, with a focus on territories affected by artisanal mining and environmental degradation.
Key Strategies	→	Development of a bioextract derived from balsa wood (*Ochroma pyramidale*), integration of the raw material into agroforestry systems, and creation of community nurseries.
Results Achieved	→	A viable and replicable alternative to mercury use in mining activities, while ensuring food security for local communities.
Strategic Partnerships	→	Collaboration with the State University of Amazonas (UEA), Military Institute of Engineering (IME), Federal University of Rondônia (UNIR), and Federal University of Rio de Janeiro (UFRJ)
Future Outlook	→	Expansion of research funding and further development of the solution to mitigate the environmental and social impacts of artisanal mining in other regions.

Areas of operation – Ochroma Project

Communities in the Médio Madeira region (Amazonas), with a focus on territories affected by artisanal mining and environmental degradation.



II. Context and Challenges

Since the 1950s, illegal gold mining[1] has left a profound mark on the Madeira River region. Activity peaked in the 1980s[2] and, more recently, in 2020,[3] driven by rising global gold prices and a permissive regulatory and political environment in the country. Gold extraction not only devastates ecosystems, but also deeply impacts the social and economic dynamics of local communities.

One of the most critical aspects of this activity is the indiscriminate use of mercury in artisanal and small-scale gold mining, especially in the Amazon. Mercury is used in the amalgamation process to separate gold from sediments. However, this technique releases large quantities of mercury into the environment, contaminating the soil, rivers, and atmosphere. In bodies of water, mercury can transform into methylmercury, a highly toxic neurotoxin that enters the food chain. As a result, riverside and Indigenous populations that rely on fish for their subsistence face serious health risks and threats to their food security.

The effects of mercury exposure are severe and often irreversible. Studies link high levels of mercury to neurological damage, cognitive impairment, motor disorders, and fetal developmental issues.[4] To reduce these impacts, Brazil is a signatory to the Minamata Convention, which imposes restrictions on the trade and use of mercury. However, weak enforcement and smuggling continue to enable its illegal circulation, making it one of the leading drivers of environmental degradation associated with illegal mining.[5]

On the mining rafts operating on the Madeira river, mercury is mixed with what is known as "gold dust" in concentration drums to form an amalgam. This mixture is then heated to evaporate the mercury, leaving behind pure gold. When carried out without proper safety measures, this process exposes workers to serious risks of mercury poisoning and releases the metal into the environment.

In a context marked by geographic isolation, limited formal employment opportunities, and a lack of support for small-scale farming, mining emerges as one of the few viable income-generating alternatives. Challenges in producing, transporting, and selling agricultural products make illegal mining an attractive option, offering faster and higher financial returns – albeit at the expense of human health and the environment.

As highlighted by Professor Marta Regina Pereira, from the State University of Amazonas, who leads the Ochroma Project, in an exclusive interview, many local miners extractors – particularly in the Médio Madeira region – engage in mining seasonally, taking advantage of the dry season when river levels are lower, and extraction can be done with limited resources. This dynamic differs from other parts of Brazil, where illegal mining often requires significant investments in machinery and infrastructure. However, the expansion of mining activities along the Madeira river has triggered a repressive response from the state,[6] without the necessary implementation of public policies or support programs for small-scale extractors. According to Pereira: "What we want is to find a way to get them out of there, but until that is possible, we at least need to make sure they are not using mercury – until we can finally implement a proper public policy."

By assessing local conditions, the Ochroma Project recognized that illegal mining is a problem that requires an integrated approach. The initiative is not limited to addressing mercury contamination; it also aims to provide alternatives that meet the socioeconomic needs of local communities. In this context, balsa wood (Ochroma pyramidale), a plant native to the Amazon, was identified as a central element for both economic and environmental transition. It combines regenerative practices, income generation, and food security.

III. Structure of the Initiative

"We started by running some tests and then scheduled meetings. The first workshop we organized was in Manicoré (Amazonas). When I arrived at the City Council, I was surprised to see nearly 500 miners. I would say that if 100% of the people working there had the opportunity to avoid harming the environment, they would take it. They are willing to work, to change, to learn. We were very well received, in all kinds of settings. Out there on their rafts, everyone wants to help."

– Marta Regina Pereira,
coordinator of Ochroma Project

Faced with the challenges posed by illegal mining and intensive mercury use along the Madeira river, the Ochroma Project was developed by Professors Marta Regina Pereira (State University of Amazonas) and Wanderley Pereira Bastos (Federal University of Rondônia), building on more than three decades of scientific research into mercury contamination in the region's rivers. Since 2017, the project has used balsa leaves to produce a bioextract that offers a sustainable alternative to mercury in gold extraction.

The choice of balsa wood was no accident. Studies have shown that its chemical and structural properties allow for efficient gold separation without the toxic impacts associated with mercury. This plant, widely found in the Amazon and other neotropical regions, was already being used in artisanal form as a mercury alternative by Afro-descendant and Indigenous communities in Chocó,Colombia.[7] The practice, developed over generations, is regarded as a sustainable and safe method.

Inspired by this traditional knowledge, the project sought to integrate science and local wisdom, respecting cultural specificities and promoting inclusive innovation. In addition to its application in mining, balsa is known for its rapid growth and lightweight wood, making it well-suited for agroforestry systems and the restoration of degraded areas. This versatility reinforces its viability as a sustainable resource.

The combination of scientific and traditional knowledge has been essential to the project's development. From the outset, the team carried out visits to local communities and mining rafts, engaging in dialogue with residents and extractive workers to understand their needs and working dynamics. This collaborative approach not only built mutual trust but also revealed a strong interest among communities in adopting more sustainable practices and contributing to the advancement of research – whether by providing samples or by learning new techniques.

To prevent the overharvesting of the plant, the project adopted Agroforestry Systems (AFS) as the foundation for production. In nurseries established by Médio Madeira communities with the project's support, balsa trees grow alongside other plant species and food crops, promoting reforestation in tandem with agricultural production.

One of the pillars of the Ochroma Project is to ensure that the developed bioextract remains patent-free, allowing riverside communities to produce and use it independently. This strategy aims not only to reduce mercury use in artisanal gold mining, but also to create income and subsistence opportunities for families, strengthening their autonomy and economic resilience.

Currently, 15 community nurseries have been established with technical support from the project and are independently managed by local communities. These nurseries cultivate seedlings of balsa trees along with fruit-bearing

and food crops. They serve a dual purpose: supplying raw material for the mercury-free bioextract and contributing to the revitalization of small-scale agriculture. Recognizing that isolated production alone is not enough to ensure lasting transformation, the project also invests in the strategic planning of the value chain. This includes technical training and the strengthening of community associations, with the goal of improving access to structured markets and supporting the efficient commercialization of community-produced goods.

IV. Impacts and Tangible Results

The Ochroma Project shows strong potential to drive both environmental and economic transition by introducing balsa wood as a sustainable alternative to reduce – and eventually eliminate – mercury use in artisanal mining. Currently in the testing phase, replacing mercury with the balsa-based bioextract represents a promising innovation capable of mitigating one of the leading sources of river contamination in the region and reducing health risks for artisanal miners exposed to the toxic metal.[8]

In addition to minimizing environmental harm, this innovation could add value to gold produced without mercury, expanding access to markets that prioritize sustainable practices and encouraging more transparent trade. This transition has the potential to increase accountability across the production chain and support the economic development of local communities by offering a viable and responsible alternative to illegal mining.

The impact of the Ochroma Project goes beyond replacing mercury – it fosters broader transformations in local production practices. Food security and the economic resilience of communities have been strengthened through the implementation of AFS and the diversification of income sources. Since the project's inception, more than 5,000 people across 15 communities have directly benefited.

The district of Capanãzinho, in the rural area of Manicoré (Amazonas State), illustrates the project's concrete impacts. With five fully structured nurseries in the region and a partnership with the Manicoré Health Department, communities have increased food production through agroforestry systems that promote pesticide-free agroecological practices and encourage mechanization. The communities of Capanãzinho are also making progress in structuring a carbon credit project, viewing this pathway as a viable means to strengthen territorial management and generate long-term financial benefits.

Managing a territory of 23,000 hectares – of which less than 4,000 are currently in use – the community is working to consolidate conservation and reforestation practices, with the goal of reinvesting generated resources into the development of agriculture through sustainable mechanization and improvements to local infrastructure. The initiative has the potential to reduce dependence on illegal mining,[9] create new income opportunities, and enhance the region's overall socio-economic resilience.

The ability of communities to organize and mobilize has been a key factor in consolidating the impact of the Ochroma Project. To date, more than 20 associations have been formalized, expanding access to resources, funding, equipment, and projects. This process strengthens community self-management and helps ensure that the benefits of the Ochroma Project remain sustainable over the medium and long term.

Another fundamental initiative has been the donation of forest and fruit tree seedlings to local communities, combined with environmental education workshops. This effort has generated a multiplier effect: communities with established nurseries have adopted and replicated these practices, promoting the voluntary expansion

of the model and strengthening cooperation networks for environmental regeneration and sustainable development.

V. Implementation and Continuity

"We have more than 100 communities that want to establish nurseries, in addition to the 14 we've already built. It breaks our hearts because we truly want to support them all, but we run into funding constraints. Communities register and send us messages – some even submit formal requests. We've even received official letters from Indigenous communities requesting nurseries. This shows just how great the demand is, but unfortunately, we're still unable to meet everyone's needs."

– Marta Regina Pereira,
coordinator of Ochroma Projec

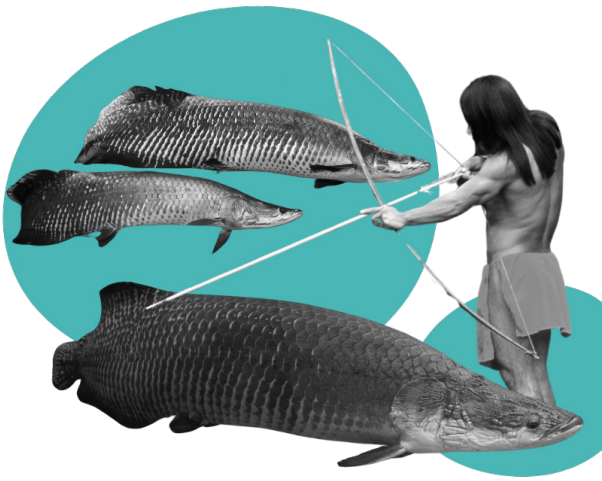
The Ochroma Project has demonstrated tremendous potential to transform the reality of communities in the Médio Madeira region. However, to ensure the project continues to move forward and reaches its full potential, adequate funding remains one of the main challenges to overcome. The scarcity of resources limits the project's ability to expand and prevents the implementation of proposed sustainable solutions in a greater number of communities that could benefit from them.

The project operates on two complementary fronts. The first focuses on scientific research aimed at developing the balsa wood bioextract as an alternative to mercury in artisanal gold mining. This component has been primarily funded by public institutions such as the Amazonas State Research Support Foundation (Fapeam) and the Rondônia State Research Support Foundation (Fapero). Public universities – including the Federal University of Rio de Janeiro (UFRJ), the Federal Univsersity of Rondônia (Unir), and the Military Institute of Engineering (IME) – also play a strategic role by providing technical and scientific support to advance the research.

The second front involves the establishment of community nurseries, which are essential to enabling a transition toward more sustainable and diversified production models. However, this phase depends on funding from the private sector, civil society organizations, and partnerships with the public sector.[10] Private companies have already contributed to the construction of three nurseries, and new collaborations are being sought to expand this infrastructure.

The transition of communities toward sustainable practices is gradual and requires an ongoing, multifaceted commitment. Adapting to new production models involves more than implementing agroforestry techniques—it requires continuous training, technical support, and dedicated follow-up. In addition, investing in awareness-raising and environmental education is crucial so that families can understand the benefits of sustainable alternatives and incorporate them in lasting ways. Effective communication and technical assistance are essential pillars to ensure that this transition is both structural and sustainable in the long term.

Lesson 2: Fair Trade and Community Management
Carauari Rural Producers Association (Asproc)



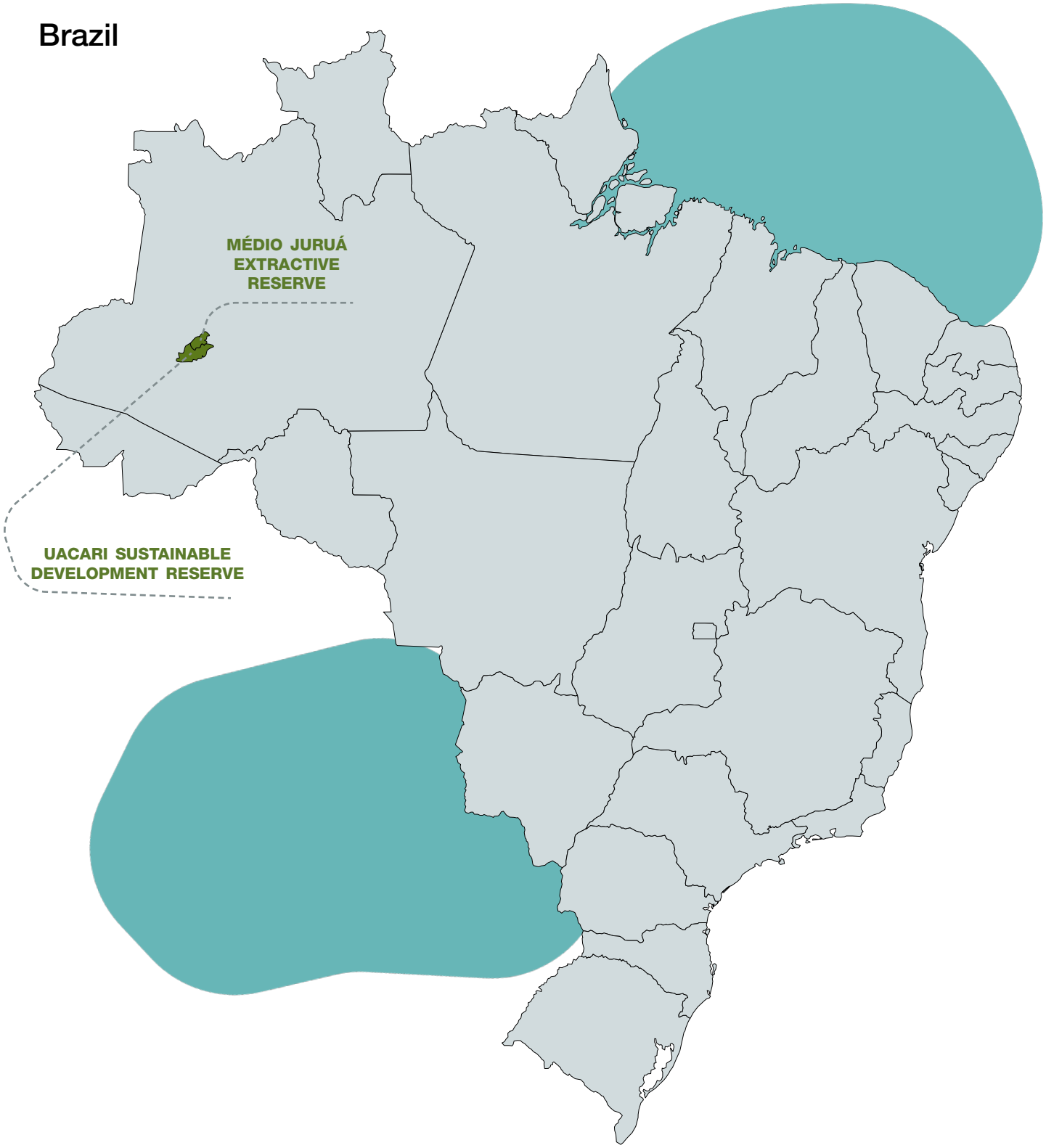
The collaborative management model for natural resources, combined with the principles of fair trade, offers an effective approach to aligning environmental conservation with socioeconomic development – delivering mutual benefits for communities and promoting ecological resilience.

I. Initiative Overview

Dimension		Description
Purpose	→	To structure the sustainable management of pirarucu (*Arapaima gigas*) through co-management practices and solidarity-based trade, ensuring sustainable income for riverside communities and promoting the conservation of fish stocks.
Problem	→	High production costs, logistical challenges in fish commercialization, river droughts, and the rise of illegal fishing.
Location	→	Médio Juruá Extractive Reserve and Uacari Sustainable Development Reserve, both located in the state of Amazonas, Brazil.
Key Strategies	→	Strengthening solidarity-based trade and integrating producers into formal markets; implementing participatory management; and providing technical training to optimize the production chain.
Impacts Generated	→	Recovery of pirarucu stocks, increased income for fishers, and strengthened community organization.
Strategic Partnerships	→	Producers, Coletivo Pirarucu, ICMBio (Chico Mendes Institute for Biodiversity Conservation), Sustainable Amazon Fund (FAS), Association of Agro Extractivist Residents of the Uacari Sustainable Development Reserve (Amaru), JBS Fund for the Amazon, Banco do Brasil Foundation, and private sector actors.
Future outlook	→	Expansion of logistics and storage infrastructure to improve efficiency and reduce commercialization costs for pirarucu; increased access to niche markets, with enhanced traceability and added value for the product; diversification of income sources through the valorization of sustainable management byproducts and integration with emerging socio bioeconomy value chains.

Areas of operation – Carauari Rural Producers Association (Asproc)

Médio Juruá Extractive Reserve and Uacari Sustainable Development Reserve, both in the state of Amazonas, Brazil.



II. Context and Challenges

"People came chasing the promise of a better life, of working and extracting rubber. Rubber was in high demand at the time, so they stayed. But the more they worked and consumed the goods sold at the bosses' supply houses, the more their debt grew. That was the employers' strategy – whom they called 'patrões' – to keep them trapped there."

– Ana Alice Oliveira de Britto, coordenadora de comercialização da Asproc

The history of the Medio Juruá region reflects a trajectory of exploitation and resistance. During the rubber boom periods (1850-1912 and 1939-1970),[11] tappers faced harsh working conditions defined by economic dependency and debt imposed through barracão systems—trading posts controlled by rubber plantation owners. This structure kept workers subordinated to the interests of the rubber barons. With the decline of the rubber economy, communities experienced extreme isolation, with limited access to goods, services, and means of subsistence. The arrival of regatões (itinerant traders)[12] introduced a new dynamic of exploitation through unequal trade relations that perpetuated local vulnerability.

Yet this context also sparked a movement of resistance and transformation. The founding of the Carauari Rural Producers Association (Asproc) in 1994 marked a turning point. Created amid social and economic marginalization, Asproc emerged as a collective initiative led by former rubber tappers and their families, aimed at breaking away from historically imposed inequalities and promoting the autonomy of riverside communities.

Guided by principles of community governance, Asproc played a central role in mobilizing families to create protected areas such as the Médio Juruá Extractive Reserve (1997)[13] and the Uacari Sustainable Development Reserve (2005).[14] These conservation units – established through the engagement of local communities in partnership with the Catholic Church – secured land rights and introduced new models of territorial governance. In addition to protecting natural resources, they catalyzed the strengthening of sociobiodiversity value chains, promoting sustainable income generation and the recognition of traditional knowledge.

Recogniting the territory as a shared space among multiple communities encouraged the cultivation of products, such as rubber, and byproducts like vegetable oils, açaí, pirarucu, and manioc flour. These goods have become central to the local economy, marking a shift from an extractive model to one that is more sustainable and inclusive.

III. Initiative Structure

"In all our processes, we focus on commercialization, always combined with sustainability, access to communication, logistics, and sanitation – but always with a strong emphasis on market access and structured sales."

– Ana Alice Oliveira de Britto, commercialization coordinator at Asproc

Since its founding, Asproc has focused on strengthening commercial infrastructure as a key pillar for the productive development of riverside communities in the Médio Juruá region. Structured commercialization is what enables the sustainable management of pirarucu (*Arapaima gigas*), making the activity financially viable for fishers while ensuring the conservation of the species. This model

became possible through the creation of the Comércio Ribeirinho da Cidadania Solidária (CRCS) – Riverside Trade for Solidarity Citizenship Program, which established a community-based sales network offering logistical and financial support so that riverside producers can sell their products without depending on intermediaries.

Launched in 2007, CRCS established a system of community supply shops, now operating in fifteen communities – fourteen local hubs and a central hub in Carauari – benefiting around 2,000 riverside residents. These shops play a vital role in organizing production and supplying communities. In addition to offering essential goods at affordable prices, they serve as collection points for the sale of local products, including sustainably managed pirarucu.

The sustainable pirarucu management model adopted by Asproc in 2011 – originally developed by the Mamirauá Institute, a social organization supported and overseen by Brazil's Ministry of Science, Technology, and Innovation (MCTI) – was created in partnership with Indigenous peoples and traditional communities. It combines scientific knowledge with local expertise to reverse the risk of extinction for the species, which has been threatened by predatory fishing. The strategy involves a set of coordinated actions throughout each harvest season, such as monitoring pirarucu stocks in lakes, setting sustainable fishing quotas, and carrying out captures in accordance with strict protocols.[15]

The flow of production is managed through a logistics system organized by Asproc, which uses boats to collect the fish stored in the community shops (cantinas) and transport it to Carauari. There, the pirarucu is processed and distributed to various consumer markets. The entire process is supported by a traceability system that ensures transparency throughout the value chain, verifying the product's sustainable origin and increasing its market acceptance.

One of the core strengths of Asproc's model is immediate payment to fishers, made possible by a growing working capital fund. This mechanism ensures that producers are paid at the time of delivery, reducing financial risk and providing predictability for the continuity of their work.

By making funds available at the beginning of each harvest season, the model allows fishers to cover operational costs, prepare for challenges – such as extreme weather events – and maintain the stability of the managed fishery. In addition to strengthening trust along the value chain, immediate payment encourages fishers to remain in the activity, ensuring long-term sustainability and expanding the impact of the system.

Community organization around the management model expanded with the creation of the Coletivo do Pirarucu in 2014. This collaborative network brings together community associations, governmental agencies, and civil society organizations to promote knowledge exchange, reinforce sustainable practices, and support territorial protection for local communities.[16] As the value chain matured, Asproc led the launch of the "Gosto da Amazônia" brand, created to promote and market sustainably-managed pirarucu. The initiative directly connected producers to regional and national markets, added value to the product, and enabled sales at prices up to 60% higher than those in the conventional market.[17] International recognition came in 2024, with Fair Trade USA certification – an endorsement of the commitment to fair trade practices and a driver for expanding export opportunities.

IV. Impacts and tangible results

The sustainable management of pirarucu in the Médio Juruá region has generated significant impacts, establishing itself as a reference in socio-environmental governance and integrated development in the Amazon. In 2022, the initiative directly involved 251 families and generated annual revenues of R$2.5 million. These resources have contributed to improving the quality of life in riverside communities and strengthening their resilience in the face of environmental and economic challenges.

One of the most notable examples of concrete impact is the São Raimundo community. Using revenue from pirarucu management, the community implemented a solar energy system that now serves 50 families. The project, which cost R$600,000, was made possible through a 50% advance payment from Asproc, which was reimbursed the following year with proceeds from the managed fishery. The installation ensures continuous access to electricity, enabling the operation of water pumping and food preservation systems, while reducing dependence on fossil fuels and promoting greater energy autonomy. In addition, 12 cantinas have been equipped with solar energy, playing an essential role in the logistics and sale of products such as pirarucu and açaí.

On the environmental front, the results are equally impressive. Between 2011 and 2021, pirarucu stocks in the region grew by 853%, contributing to the protection of 1,020,000 hectares of forest and strengthening the integrity of both aquatic and terrestrial ecosystems. The involvement of local communities in lake management has been crucial not only for the recovery of the species, but also for reducing the presence of offenders and the occurrence of environmental crimes, as the fishers themselves monitor and report illegal activities. In this way, the management model also benefits other key species essential to the region's ecological balance, such as tambaqui fish (*Colossoma macropomum*), caimans, and freshwater turtles, which share the same habitats.[18]

The success of pirarucu management has also become a model for other productive chains that help reduce pressure on natural resources, such as the management of oilseed seeds, latex extraction, and the development of agroecological practices.

Progress in basic sanitation represents another important milestone. Through the Sanear Amazônia project, developed by Asproc, systems were implemented to capture rainwater, along with individual 1,000-liter water tanks and private bathrooms – benefiting hundreds of families. These solutions, adapted to the conditions of the Amazon region, contribute to improved public health indicators and help reduce structural inequalities, standing out as an award-winning example of social innovation.[19]

From an economic perspective, the management of pirarucu, combined with the valorization of byproducts and the diversification of productive chains – such as rubber and açaí – has strengthened the financial stability of local communities. The elimination of intermediaries and the immediate payment to fishers have increased families' purchasing power, enabling investments in durable goods such as refrigerators, freezers, and satellite dishes. Access to public policies like the National School Feeding Program (PNAE) and the Food Acquisition Program (PAA) has helped establish stable income streams, while direct sales through community shops have reduced product costs for families by up to 50%.

The cumulative impact of these initiatives has positioned the Médio Juruá as a unique territory within the Amazon. The integration of environmental conservation and

socioeconomic development – sustained by participatory governance – sets the region apart from other parts of the Amazon, where the lack of infrastructure and community organization remains evident.

IV. Implementation and continuity

The sustainable management of pirarucu in the Médio Juruá faces complex challenges but also presents a unique opportunity to consolidate a socio-environmental development model in the Amazon. By combining innovation, participatory governance, and collaboration among communities, institutions, and markets, the initiative aims to ensure the long-term sustainability of the activity and expand its positive impact.

Among the main challenges are logistical and infrastructure issues related to the storage and transportation of pirarucu. The lack of properly equipped vessels with refrigeration chambers and the overload of processing facilities during harvest season increase the risk of product spoilage and drive up operational costs.

To address these barriers, Asproc is investing in the construction of a cold storage facility in Carauari (Amazonas), which will be certified with the Federal Inspection Seal (FIS). With the capacity to freeze up to 250 tons of pirarucu per year, the new facility will ensure product quality and increase its competitiveness in national and international markets. At the same time, the association plans to retrofit boats for refrigerated transport, reducing losses and improving logistical efficiency.

However, the challenges of commercialization go beyond infrastructure. Asproc aims to ensure a high-quality product while promoting recognition of the role of resource managers in environmental conservation and the strengthening of the community-based economy. Raising awareness among markets about the socio-environmental importance of sustainable management is essential for fishers to be properly valued and fairly compensated. This recognition is also crucial to engage younger generations, encouraging the continuity of the activity and supporting its consolidation in the face of growing competition from unregulated supply chains.

On the other hand, illegal fishing – driven by high demand for pirarucu in informal markets – poses a significant threat to sustainable management.[20] Predatory harvesting, carried out without environmental safeguards, jeopardizes the species' stocks and directly impacts the local economy, especially in terms of pricing and market competition. Addressing this issue requires a collective effort by associations, regulatory agencies, and consumers to strengthen traceability and ensure that sustainably managed pirarucu is distinguished and valued in the marketplace.

The future of the initiative depends on Asproc's ability to consolidate its achievements and expand its impact. Building efficient logistics and appropriate processing infrastructure – alongside the strengthening of regional value chains – opens the door to access premium markets, as demonstrated by recent pirarucu exports to Canada and China via Fish of Change.[21] Such networked action to boost commercial capacity will be essential to ensure that managed fisheries continue to deliver economic and social benefits to riverside communities. At the same time, it is vital to preserve the values that have guided the association since its founding – promoting dignity, autonomy, and the recognition of traditional extractive livelihoods.

Lesson 3: Integration into Global Markets and Cultural Valorization
Kallari Cooperative

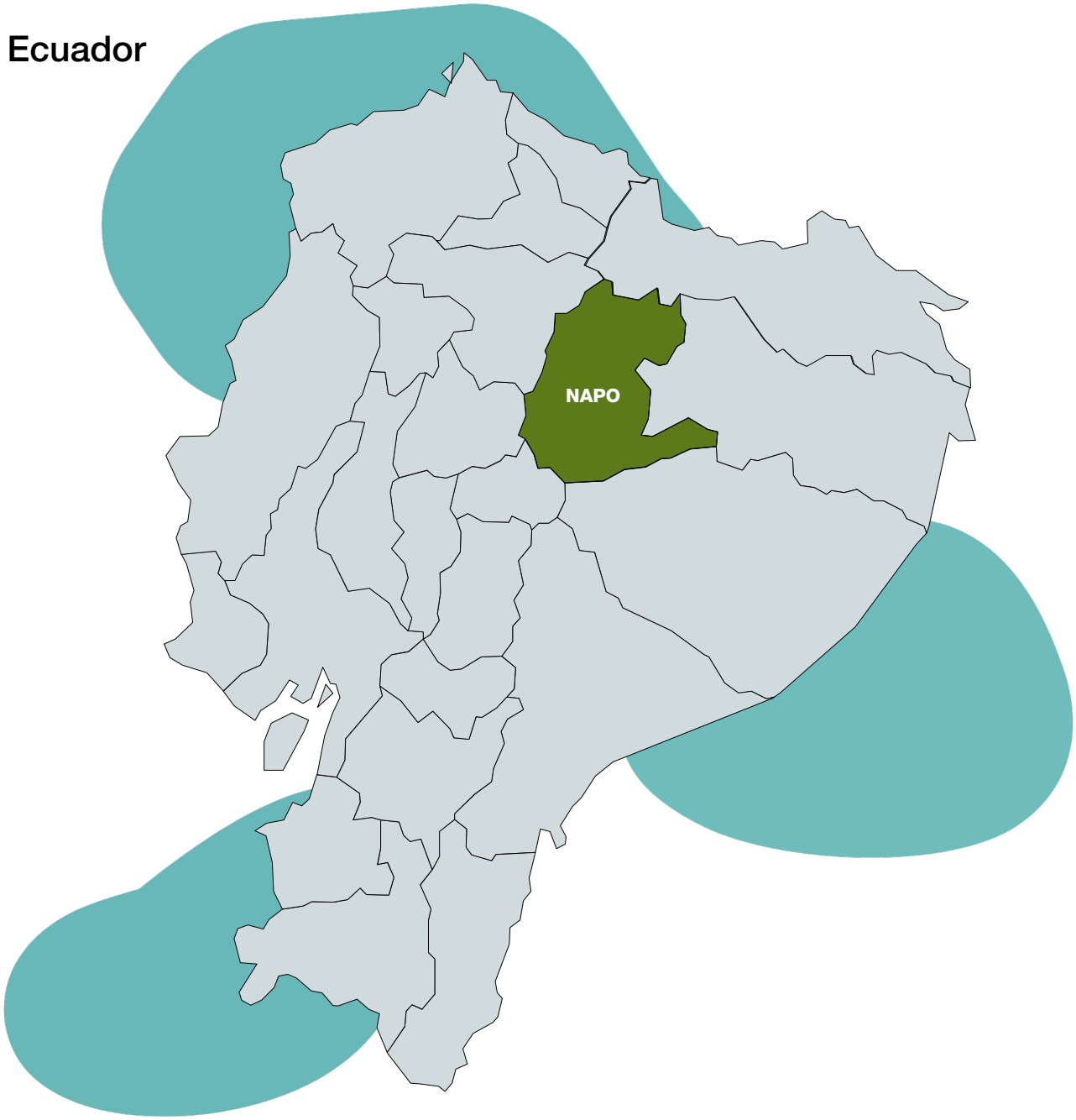
Initiatives that prioritize community leadership in decision-making and operational control tend to achieve greater impact and long-term sustainability. The experience of Kallari highlights the importance of local empowerment, with communities taking the lead at every stage – from cultivation to access to global markets. This model strengthens local economies, encourages sustainable practices, and positions traditional knowledge as a competitive advantage in the international arena.

I. Initiative Overview

Dimensão		Descrição
Purpose	→	To create a community-led economic model based on the sustainable production of cacao and chocolate.
Problem	→	Competition with large corporations, pressure from illicit activities, impacts of climate change on cacao plantations, and the need to comply with strict certification and export standards.
Locatio	→	Napo, Ecuador
Key Strategy	→	Direct processing and marketing of cacao, strengthening Indigenous governance, and valuing traditional knowledge.
Impacts Generated	→	Increased income for producers, strengthened Indigenous identity, and global recognition of the *Kichwa* agroforestry model.
Strategic Partnerships	→	*Kichwa* producers, Jatun Sacha Foundation, Pachamama Foundation, Ministry of Agriculture, Geo Schutz NGO, national and international clients, and multilateral organizations such as the UN.
Future Overlook	→	Expansion of production, consolidation in international markets, and strengthening of Indigenous territorial governance.

Areas of operation – Kallari Cooperative

21 communities in the Napo region, Ecuador.



II. Context and Challenges

The province of Napo, located in the Ecuadorian Amazon, is a territory rich in biodiversity and home to the Indigenous *Kichwa* communities. For generations, these communities have practiced the chakra agroforestry system – an ancestral model that integrates multiple plant species and agricultural crops in harmony with the environment. The *chakramamas*, women who lead the management of these systems, are guardians of traditional knowledge, passing down sustainable practices from generation to generation and safeguarding the ecological and cultural integrity of this model.

Although Ecuador is among the world's largest producers of fine (high-quality) cacao,[22] much of its production still follows the conventional logic of raw material export, preventing farmers from adding value to their own products. This model perpetuates inequality, as producers retain, on average, only 6% of the final value of a chocolate bar,[23] while facing high production costs, logistical barriers, certification challenges, and the strong influence of intermediaries. The volatility of international prices further aggravates this situation, often making it difficult for small producers to cover even basic costs, thereby compromising their economic stability.

Ecuador is not an isolated case. The growth in global demand for cacao has driven the expansion of monoculture for export purposes, intensifying environmental and social impacts across several countries in Latin America and Africa. The conversion of forests into single-crop plantations drastically reduces biodiversity, leaving crops more vulnerable to pests and diseases and increasing dependence on chemical inputs. In addition, the pressure for large-scale productivity has been associated with child labor exploitation and labor rights violations – recurring issues in the global cacao supply chain. In Ecuador, as in other producing countries, this market logic benefits large corporations at the expense of farmers' economic stability and environmental sustainability, compounding the challenges faced by smallholders seeking fairer and more sustainable alternatives.

In response to this scenario, the creation of the Kallari Cooperative in 1997 marked a break from the traditional cacao supply chain, opening a new path for small farmers in the region. The initiative empowered local producers, allowing them to take control of the entire value chain – from sustainable cultivation using the chakra system to direct commercialization in global markets.

III. Initiative Structure

Kallari is a community-based cooperative made up of 850 *Kichwa* families across 21 communities and five districts in the Napo region. Unlike most cacao producers around the world, Kallari not only cultivates cacao but also carries out every step of the chocolate production process, ensuring that the added value remains within the community. This vertically integrated model starts with cacao cultivation and extends to chocolate distribution and sales, allowing producers to make collective decisions and maximize both the economic and social benefits of their work.

The production process begins with sustainable cacao cultivation through the *chakra* agroforestry system. Cacao trees are intercropped with other native plants such as *guayusa* (part of the same botanical family as yerba mate) and vanilla, which enhances ecological resilience and results in a unique product for the international market. The cacao is grown in small family plots managed by local collectives, ensuring both sustainability and the preservation of cultural traditions.

After harvesting, producers carry out the fermentation and drying of cacao beans – critical steps in ensuring the final quality of the chocolate. Prior to the cooperative's founding, these processes were done in a decentralized and inconsistent manner. With the creation of Kallari, farmers gained access to technical training that significantly improved the quality and standardization of these steps.

Next, the cacao is processed into chocolate in facilities operated by the cooperative itself in Quito. Kallari has invested in producing its own goods, including chocolate bars, cacao nibs, and cacao powder. This strategy has enabled the *Kichwa* to maintain control over the quality and pricing of the final product, establishing the cooperative as one of the few Indigenous-led organizations in the world that controls the full chocolate value chain – from cultivation to commercialization.

Entry into international markets was made possible through partnerships with the private sector, which supported the construction of processing facilities in Quito and the delivery of training programs to improve producer qualifications. The cooperative began manufacturing and exporting finished products. Sales are organized collectively, ensuring the equitable distribution of profits among cooperative members. In addition to chocolate sales in the Ecuadorian market, Kallari has reached global markets through strategic partnerships with private companies, public institutions, and third-sector organizations.[24] Certifications such as Fair Trade and EU Organic have guaranteed fairer pricing and formal recognition of the sustainability of its production practices.

The cooperative's governance structure is one of the key factors behind its success. Strategic decisions are made during general assemblies, where each community has an active voice. The board of directors, composed of elected representatives from the communities, oversees operations and ensures that collective interests are prioritized. This participatory model strengthens community autonomy and prevents production control from being transferred to outside actors.

IV. Impacts and tangible results

In economic terms, Kallari has revolutionized the way *Kichwa* producers market their products. By eliminating intermediaries, the cooperative ensures fairer prices for farmers, allowing families to double their average income. Kallari currently exports directly to markets in the United States, Europe, and Japan, where its certified products command higher added values. In addition, diversification – through the cultivation of guayusa (a medicinal aromatic plant), vanilla, and handcrafts – has expanded income opportunities and provided greater economic stability for communities. The cooperative benefits more than a thousand families, totaling around 5,000 people, by ensuring fair compensation for small-scale producers. By purchasing cacao from the producers at above-market prices,[25] Kallari stands as a significant milestone in a region historically marked by illicit activities[26] and high rates of poverty.[27]

The social impact of Kallari is equally transformative. By preserving the *chakra* agroforestry system, the cooperative keeps alive the ancestral connection between the *Kichwa* people and Amazonian biodiversity, promoting a harmonious integration of culture, economy, and nature. This model strengthens collective identity and ensures that community well-being takes precedence over individual interests. Kallari also promotes gender equity: 60% of its members are women who play central roles both in managing the *chakras* and in the cooperative's strategic decision-making.[28] Participatory governance ensures that collective priorities are respected and that benefits are distributed equitably. The cooperative has established itself as a driving force in the cultural and economic recognition of the region, positioning itself as one of the leading references in the Cacao Route – an initiative promoted by the Ecuadorian government to highlight the historical, cultural, and economic importance of cacao in the country.

In addition, Kallari was a pioneer in elevating the value of Amazonian cacao and played a key role in the creation of Ecuador's Cacao Route – a government initiative that promotes the recognition of local producers and strengthens sustainable tourism. By integrating small-scale producers into an autonomous and environmentally sustainable model, the cooperative helped position the Napo region on the global map of fine cacao. Its involvement in the Cacao Route brought greater visibility to cacao grown in the Ecuadorian Amazon, expanded access to specialized markets, and enhanced the value of agroecological production and *Kichwa* cultural heritage.

On the environmental front, Kallari plays a critical role in conserving the Amazon rainforest. By encouraging cultivation through the *chakra* agroforestry system, the cooperative contributes to the preservation of biodiversity and prevents the expansion of the agricultural frontier, thus protecting vulnerable ecosystems. The Amazonian *chakra* also plays a significant role in mitigating climate change, thanks to its carbon sequestration potential.[29] The exclusive use of organic practices and the absence of chemical inputs further underscore the cooperative's commitment to soil health and the preservation of natural resources.

V . Implementation and Continuity

Kallari's journey is rooted in the connection between cacao production and improving the quality of life for *Kichwa* communities – a balance that demands constant innovation, strategic planning, and an unwavering commitment to social and environmental justice. The global cacao market dynamic and growing environmental pressures on the Amazon present ongoing challenges while reinforcing the relevance of sustainable models like the one Kallari has promoted for the past 28 years.

The *chakra* agroforestry system remains the backbone of the cooperative's strategy. One of its top priorities is to increase the productivity of the *chakras* without compromising the environmental principles that underpin the system. Achieving this requires investment in sustainable agricultural technologies and continuous technical training to address challenges such as extreme weather events and the demand for greater production efficiency.

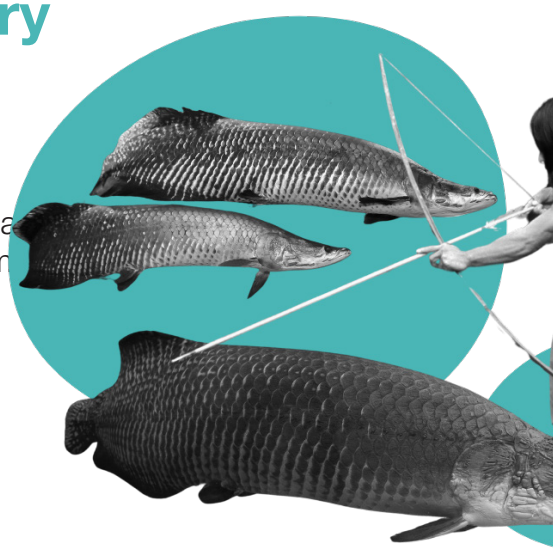
On the social front, Kallari is anchored in strong, inclusive community governance. The recognition of women's contributions – who play central roles in both production and management – and the strengthening of local leadership are key pillars of this approach. Passing on knowledge to younger generations is also essential to ensure the continuity of the model as both a productive base and a cultural legacy.

Kallari seeks to consolidate its presence in national and international markets by strengthening strategic partnerships and diversifying its client base. The quality and sustainability of their products have been critical to its competitiveness in demanding markets, helping expand recognition of the cooperative and establish its brand as a reference in fine-flavored cacao. This expansion not only creates new business opportunities but also helps reposition Indigenous communities as active agents in the global economy.

The cooperative's commitment to innovation – such as the development of chocolates made with regional ingredients and derivatives of guayusa and vanilla – reflects a long-term strategy that combines economic growth with cultural and environmental appreciation. This approach ensures that the production model remains sustainable and aligns with the cooperative's core principles.

Lesson 4: Regenerative Agroforestry and Technical Assistance

Belterra Agroflorestas



Technical training in regenerative agroforestry practices can create a virtuous cycle of environmental restoration and economic developm It demonstrates that ecosystem restoration is not only an efficient nature-based solution (NbS) for atmospheric carbon sequestration but also a valuable source of opportunity for local communities.

I. Initiative Overview

Dimension		Description
Purpose	→	Regenerate degraded areas through the implementation of productive agroforestry systems, promoting a sustainable transition for farmers.
Problem	→	Land degradation, low productivity of traditional farming practices, lack of technical assistance, and limited access to markets and credit.
Location	→	Pará, Rondônia, Mato Grosso, Bahia, Minas Gerais, Amazonas and Piauí.
Key Strategy	→	Implementation of agroforestry systems, technical assistance for farmers, and development of scalable production models.
Impacts generated	→	Increased productivity in regenerated areas, diversification of crops, and strengthening of sustainable value chains.
Strategic Partnerships	→	Fundo Vale, Natura, Green Climate Fund, One Tree Planted, among others – collaborating in the financing, development, and scaling of socio-environmental solutions aligned with sustainable territorial development.
Future Overlook	→	Expansion into new areas, increased generation of biodiversity and carbon credits, and strengthening of regional and global value chains.

Areas of operation – Belterra Agroflorestas:

Pará, Rondônia, Mato Grosso,Bahia, Minas Gerais, Amazonas and Piauí.

Brazil

II. Context and Challenges

Belterra was founded in 2020 in the context of escalating environmental degradation, as evidenced by high deforestation rates in the Brazilian Amazon and Cerrado.[30] In these regions, vast areas have been converted into low-productivity pastures and monocultures, intensifying biodiversity loss and increasing pressure on natural ecosystems.[31] Driven by extensive cattle ranching, illegal mining, and land grabbing on public lands, this process threatens not only environmental balance but also the livelihoods of small and medium-scale farmers – the main economic actors in these regions. Similar patterns are seen in other biomes, such as the Atlantic Forest, where vegetation loss, soil erosion, and water scarcity worsen both production and environmental challenges.

Without technical assistance, access to credit, or integration into higher-value supply chains, many farmers resort to predatory practices, further exacerbating this scenario. The disconnect between economic incentives and environmental sustainability perpetuates a cycle in which degraded areas remain either unproductive or are exploited unsustainably. Despite the strong potential of family farming to drive regenerative value chains, a lack of institutional support has limited this transition, curbing its contribution to environmental restoration and economic development.

It was within this landscape that Belterra identified an opportunity for innovation and impact. By combining environmental regeneration and sustainable agriculture into a unified proposal, the company developed a business model that connects farmers to tangible economic incentives. In a country where roughly 14 million hectares require restoration of native vegetation,[32] Belterra is investing in the implementation of productive agroforestry systems as a strategy to align environmental conservation with income generation – promoting a new balance between production and restoration.

III. Initiative Structure

Belterra has developed an innovative and integrated model that combines environmental regeneration with productive transformation, grounded in partnerships with small and medium-scale farmers. The company works alongside producers interested in converting their properties into productive and sustainable territories, establishing contracts that include leasing agreements, commercial integration, and rural partnerships. To achieve this, it adopts Agroforestry Systems (AFS), adapting production models to the specific characteristics of each biome – Amazon, Cerrado, Atlantic Forest, and Caatinga.

AFS offer multiple environmental and economic advantages but involve significantly greater technical complexity compared to traditional agricultural practices such as monoculture. This transition presents a major challenge for farmers, who often rely on conventional techniques and have limited access to innovative technologies and mechanization. While monoculture relies on more linear knowledge, AFS require the mastery of integrated techniques that combine short- and long-cycle crops, forest management, soil conservation, and biodiversity preservation. Managing these diverse systems, which may include crops such as cassava, banana, cacao, açaí, and timber species, demands specific training for planning, implementation, and monitoring of results.

Recognizing this barrier, Belterra identified technical training as a fundamental component. Together with farmers, the company provides support in developing planting plans, selecting crops, and identifying suppliers and markets for their products. This technical assistance reduces the risks associated with transitioning to agroforestry systems and increases farmers' chances of long-term productive and economic success.

Partner farmers also receive specialized training in regenerative practices such as the use of biochar, organic fertilization, and integrated management of AFS. These techniques contribute to environmental restoration, increase productivity, and diversify farmers' income sources. By acquiring these skills, producers are better positioned to compete with predatory, high-impact activities while also meeting the growing global demand for traceability and sustainability.

Another key component of Belterra's model is its connection to local cooperatives. These organizations play a key role in integrating farmers into larger, more structured value chains. Through cooperatives, producers are able to sell their products at scale, access regional and global markets, and negotiate better sales conditions. Belterra also works with cooperatives to establish networks for technical and logistical support, amplifying the impact of regenerative practices and promoting long-term community development.

The integration of financial solutions also plays a critical role. Belterra attracts investment from various sectors to finance the upfront costs of implementing AFS – from soil recovery to infrastructure installation – thereby reducing the financial barriers that often prevent farmers from adopting sustainable practices. Through this approach, the transition to regenerative agriculture becomes more accessible and scalable.

IV. Impacts and Tangible Results

Belterra's work demonstrates that it is possible to implement productive systems that are strategically aligned with generating social, economic, and environmental impact. Through AFS, the company restores native vegetation by establishing crops integrated with the forest, maximizing productivity and preserving soil health while reducing the need to expand agricultural frontiers. This model has already directly benefited 249 rural families and highlights the economic potential of transitioning to regenerative practices. According to Valmir Ortega, founder of Belterra, AFS can generate up to 10 times more net income per hectare than soybean cultivation, and up to 15 times more than extensive cattle ranching.[33]

Belterra also drives a significant transformation by encouraging generational reconnection with rural life. By integrating recent technologies and technical knowledge into agroforestry practices, the company promotes the value of rural work and improves quality of life – encouraging younger generations to remain on the land and strengthening their ties to both community and territory.

Another crucial aspect is connecting farmers to sustainable and traceable value chains. Regenerative production enables access to higher-value markets, diversification of activities, and greater economic stability. Partnerships with cooperatives and commercial networks further expand growth opportunities for producers.

Since its founding, Belterra has restored more than 5,000 hectares of degraded land across seven Brazilian states and plantedmillions of seedlings of forest and agricultural species.[34] Its efforts contribute to ecosystem regeneration, carbon emissions reduction, and the generation of biodiversity and carbon credits – promoting the conservation of natural resources and increasing environmental resilience.

V. Implementation and Continuity

Restoring millions of hectares of degraded land in Brazil is a complex challenge that requires scalable solutions and collaboration across multiple sectors. To enable large-scale transformation, Belterra has raised R$27 million

and is already planning a new funding round of R$50 million, securing resources to expand its operations and strengthen its impact.[35] With the goal of restoring 40,000 hectares by 2030, the company reinforces the notion that environmental regeneration and economic development are complementary pillars for building sustainable and resilient territories.

Another cornerstone of Belterra's strategy is its role in the emerging carbon and biodiversity credit markets. Partnerships with companies like Amazon aim to establish reliable carbon credit markets, positioning Brazil as a global leader in climate change mitigation.

Belterra has demonstrated strong potential to align traditional agricultural practices with technological innovation. Technologies such as satellite monitoring, drones, and artificial intelligence are being used to map critical areas, track forest growth, and ensure real-time traceability of activities. Integrated into data management and analysis platforms, these tools enable more efficient planning, supporting smarter species selection, adaptive planting schedules, and the optimized use of natural resources.

Ensuring large-scale restoration requires more than isolated funding – it demands an enabling environment for the development of agroforestry and the consolidation of a broader ecosystem of projects focused on environmental restoration. To support this goal, Belterra created the Belterra Institute for Innovation and Sustainability, which operates in research and development – validating productive models, for example – and serves as an accelerator for high-impact initiatives.

In the area of collaborative networks and the sharing of technical and strategic knowledge, a key initiative is the Agroforestry Dialogue Series, created in partnership with the Climate and Society Institute (iCS) and Fundo Vale. This project brings together entrepreneurs, specialists, and farmers to discuss barriers and opportunities, promote positive socio-environmental impact, and propose collective solutions. Topics covered include business models, land tenure regularization, and value chain development, all with the goal of fostering innovation and strengthening Brazil's agroforestry ecosystem.

The Institute focuses on reaching communities and territories where Belterra has not yet established structured commercial models – such as collectively owned lands – working with philanthropic funding and directly executing environmental restoration efforts. The two strategies – the company's for-profit business model and the Institute's nonprofit approach – operate in an integrated manner to maximize positive outcomes for beneficiaries.

Lesson 5: Consolidating Sustainable and Traceable Value Chains

Origens Brasil Network

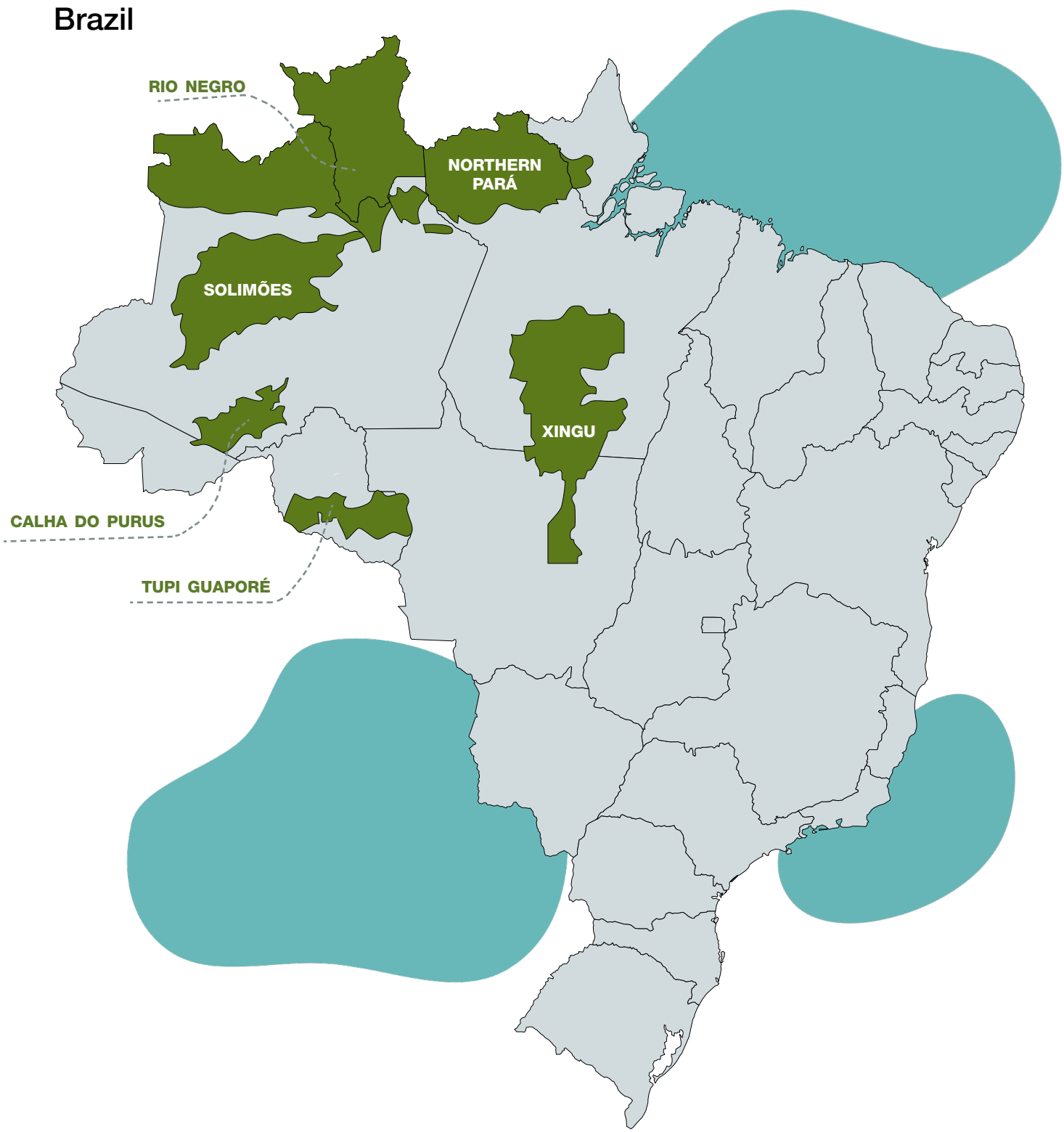
The consolidation of sustainable value chains rooted in community-based sociobioeconomies depends on collaboration among multiple actors – including the private sector and civil society organizations – to develop more responsible markets and strengthen local economies.

I. Initiative Overview

Dimension		Description
Purpose	→	To connect Indigenous and traditional producers with ethical markets, ensuring traceability, transparency, and the valorization of sociobiodiversity products.
Problem	→	Logistical and commercial challenges of doing business in the Amazon, territorial pressures, and the impacts of climate change.
Location	→	In five major territories of the Amazon: Xingu, Northern Pará, Rio Negro, Solimões, and Tupi Guaporé – covering 49 protected areas.
Key Strategy	→	Implementation of traceability systems, certification of origin, and connection between producers and companies committed to ecological transition.
Impacts generated	→	Implementation of traceability systems, certification of origin, and connection between producers and companies committed to ecological transition.
Strategic Partnerships	→	Producers, Indigenous peoples, traditional communities, grassroots associations, 92 supporting institutions, and corporate partners.
Future Overlook	→	Expansion of the network, improvement of payment systems for socio-environmental services, strengthening of the certification label, and development of new sales channels.

Areas of operation – Origens Brasil Network:

Five major territories in the Amazon: Xingu, Northern Pará, Rio Negro, Solimões, and Tupi Guaporé, covering 49 protected areas.



II. Context and Challenges

"At that moment, the idea of a certification label started to emerge – one that would provide guarantees and set these products apart. Additionally, the Indigenous peoples emphasized how important it was for their stories to be recognized – and for the world to know that beneath the forest canopy, there are many people keeping that forest standing."

- Luiz Brasi Filho,
market coordinator at Imaflora/Origens Brasil

The Origens Brasil Network, created in 2015 by the Socio-Environmental Institute (ISA) and Institute for Forest and Agricultural Management and Certification (Imaflora), was born as a response to the need to connect Indigenous, Afro-descendant (quilombola), extractivist, and riverside communities in the Amazon to ethical markets. Its main goal is to value traditional ways of life, promote the sustainable use of natural resources, and ensure fair compensation along local supply chains. By highlighting the vital role these communities play in forest conservation, the network seeks to transform exploitative dynamics into opportunities for socioeconomic empowerment.

The initiative operates in key Amazonian territories facing challenges that threaten both community livelihoods and ecosystem integrity. These include Indigenous lands such as Yanomami and Kayapó, which are under pressure from illegal activities like logging and gold mining. Beyond these threats, poor logistics infrastructure creates significant obstacles for transporting and marketing extractive products – often making them unprofitable for small producers. The presence of intermediaries, who purchase goods at disproportionately low prices, perpetuates economic exploitation and hampers the value recognition of sustainable supply chains.

To address these challenges, the Origins Brasil Network was designed as a collaborative model involving local communities, civil society organizations, and enterprises. The development of this mechanism began in the Xingu region, where dialogue with Indigenous associations – such as Associação Floresta Protegida (Protected Forest Association) – was essential for understanding the needs of communities and identifying strategies to enhance the market value of their products.

From this initial experience, facilitated by Instituto Socioambiental (ISA) and Imaflora, a traceability and certification mechanism was established – represented by the Origens Brasil seal – which guarantees the sustainable origin of products and strengthens the connection between conscious consumers and producer communities. This model was later expanded to other regions, respecting the specific contexts and characteristics of each territory.

Currently, the Origens Brasil Network operates in territories such as Negro River and the Tupi Guaporé, Xingu, Northern Pará, and Solimões regions – some of the most biodiverse areas of the Amazon. The network not only connects these regions to markets but also contributes to the preservation of the Amazon's environmental and cultural heritage, ensuring that sociobiodiversity products are directly associated with forest conservation and the recognition of the communities who depend on it.

III. Initiative Structure

The Origens Brasil Network is an initiative that connects sustainable value chains from the Amazon to ethical markets, promoting environmental conservation and cultural appreciation. At the center of this model are traditional communities – such as Indigenous peoples, Afro-descendant, extractivists, and riverside populations – who produce raw materials and sociobiodiversity goods sourced from protected territories. These communities are introduced to companies in the food, fashion, art, home décor, and cosmetics sectors that are committed to ethical trade practices, establishing contracts that ensure fair compensation and recognition of product origin.

This collaboration is strengthened by 92 supporting institutions and community-based organizations whose long standing work with traditional peoples has helped align commercial goals with environmental conservation. These organizations play a key role in integrating new ventures into the Origens Brasil Network, beginning with a territorial assessment. This analysis takes into account factors such as location within protected areas, the existence of at least minimally structured value chains, the presence of local associations, and the community's capacity to meet market demands. In some cases, the network identifies specific market demands – such as the growing interest in cumaru – and seeks territories capable of meeting those needs. When a value chain is not yet fully structured, the network works to provide the necessary support to develop it, enabling future integration.

As a strategic facilitator, the Origens Brasil Network fosters integration between traditional communities and partner companies, adapting commercial practices to the realities of the Amazon region. This includes adjusting payment terms, schedules, and workflows to align with community production cycles and ways of life – ensuring that environmental and cultural sustainability are not compromised. At the same time, communities receive technical support to improve product management, organization, and pricing. This model aims to balance market demands with the conservation of territories, promoting a sustainable and inclusive economy.

This purpose was solidified with the creation of the Origens Brasil brand in 2016 and its certification label, which guarantees product traceability and authenticity. Through a proprietary digital platform,[36] the network verifies the traceability of products from their origin to the final consumer, recording detailed information on the production territories, volumes produced, fair pricing, and socio-environmental impact – data that are accessible to producers and companies and can be incorporated into their performance metrics.

Each certified product carries a label with a QR code that allows consumers to access information about the item's history, the producing community, and the territory of origin. This combination of traceability technology and cultural appreciation adds authenticity to the products and raises awareness among markets and consumers about the values embedded in goods produced by the guardians of the forest.

The governance of the Origens Brasil Network serves as the foundation for its implementation and effectiveness, reinforcing the principles of participation and collaboration that are central to the model. The structure consists of six territorial committees, one business committee, and a governing board, bringing together representatives from communities, supporting institutions, and partner companies. This arrangement enables continuous and structured dialogue, allowing lessons learned in one territory to be adapted and applied in others.

IV. Impacts and Tangible Results

Since its founding, the Origens Brasil Network has driven significant transformations in the territories where it operates. Economically, the network has moved over R$23 million since 2016, directly benefiting 4,053 registered producers and indirectly impacting 16,212 people.[37] Environmentally, it has played a key role in the conservation of 61 million hectares of forest, contributing to biodiversity preservation and the recognition of protected territories. Additionally, the Origens Brasil seal's traceability and authenticity system has increased the visibility of products and producers, strengthening their presence in ethical markets.

Beyond these impressive figures, the network stands out for promoting the autonomy of traditional communities. The process of integrating into the network involves the formalization and capacity building of community organizations, enabling them to operate more effectively and expand their market opportunities. This structural strengthening improves the management of existing value chains and fosters the development of new skills, such as pricing, logistical organization, and strategic management. This capacity-building creates a solid foundation for communities to broaden their horizons, access new markets, and manage their projects more efficiently.

A powerful example of the impact generated by Origens Brasil is the Native Rubber Project, developed in partnership with Mercur.[38] Over the course of a decade, the initiative significantly boosted the production of wild-harvested rubber in Rondônia – from 400 kg in 2023 to 4 tons in 2024. More than just a commercial relationship, the project has become a tool for turning ecosystem protection into profitable business opportunities, allowing local communities to safeguard their natural assets. Participatory price-setting – adjusted to the conditions and needs of extractive communities – has helped revive sustainable rubber harvesting in territories such as Tupi-Guaporé, engaging Indigenous communities and reinforcing environmental conservation.

V. Implementation and Continuity

Origens Brasil Network views the Amazon bioeconomy as a strategic pillar for Brazil's sustainable development, as it brings together environmental conservation, cultural appreciation, and economic innovation. This multidimensional perspective shows that conservation and progress are not opposing forces but rather complementary – and, when properly integrated, can drive a resilient and sustainable economic model. With its abundance of natural resources and cultural diversity, Brazil is uniquely positioned to lead a global transformation in both economic and climate spheres.

The future of the network is focused on expanding into new territories and improving payment mechanisms for socio-environmental services. This pilot project, currently under study, aims to compensate local communities for the essential role they play in keeping the forest standing and providing ecosystem services. The initiative seeks to improve income generation, scaling up the positive impacts already observed in territories that are part of the network.

However, advancing this agenda requires structural changes in how business is conducted in the Amazon – and in how various stakeholders approach this challenge. The continuity and success of the initiative depend on a broad and committed alliance: governments must provide incentives and clear regulations; companies need to adopt ethical practices and invest in long-term relationships; consumers must value sustainable products; and local communities must continue serving as forest guardians – with the recognition and support they deserve.

Lesson 6: Fostering Scalability and Supporting Impact-Driven Entrepreneurso

Amaz Accelerator

Strategic support for emerging companies, combined with the creation of investor networks committed to socio-environmental impact, can boost the scalability of community-based initiatives, amplifying their transformative effects and fostering lasting change in territories affected by illicit activities and environmental degradation.

I. Initiative Overview

Dimension		Description
Purpose	→	To foster impact businesses in the Amazon through investment, capacity building, and strategic connections.
Problem	→	Lack of funding and support for sustainable enterprises in the region; limited access to credit; poor logistical infrastructure; and the absence of pre-competitive conditions for sociobiodiversity value chains.
Location	→	Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Rondônia, Roraima, and Tocantins.
Key Strategy	→	Acceleration of startups and impact-driven businesses, investment in sustainable ventures, and strengthening of support networks.
Impacts generated	→	Scaling and replication of sustainable initiatives, attraction of investment for the bioeconomy, and creation of green jobs.
Strategic Partnerships	→	Fundo Vale, Climate and Society Institute (iCS), JBS for the Amazon, and other organizations.
Future Outlook	→	Expansion of the portfolio of supported businesses, stronger integration with global markets, and strengthening of the bioeconomy ecosystem.

Areas of operation – Amaz Accelerator

Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Rondônia, Roraima, and Tocantins.

Brazil

II. Context and Challenges

Sustainable development in the Amazon faces challenges that limit its potential to consolidate as an economic model aligned with environmental conservation. For decades, efforts in this direction have been led primarily by governments, academia, and civil society organizations. These initiatives have played a crucial role in testing concepts and implementing local projects focused on conservation and forest restoration. However, they have often struggled to scale successful solutions to structurally transform the regional economy.

While traditional sectors such as large-scale agriculture and mining continue to attract significant volumes of investment, initiatives linked to forest conservation and restoration remain limited in presence – regardless of their size, from micro to large enterprises. This disparity reflects the difficulty of turning sustainable projects into scalable and financially viable ventures, underscoring the need for ongoing support and an enabling environment for the development of such models.

Among the value chains with strong potential to align environmental conservation with income generation are açaí, Brazil nuts, pirarucu, and agroforestry systems. However, all of these face structural barriers that hinder their growth. A lack of consistent investment in research, development, and innovation – combined with inadequate logistical infrastructure – limits their competitiveness compared to heavily subsidized sectors like soy, pulp, and paper. This highlights the urgent need to create pre-competitive conditions that can strengthen sociobiodiversity value chains.

Another critical obstacle is the fragmentation of the ecosystem for impact business in the region. The absence of robust collaborative networks makes it difficult for entrepreneurs to access essential services such as design, legal and technical advisory, and infrastructure for product transport and distribution. This disconnection between entrepreneurs, investors, communities, and suppliers limits the potential for sustainable initiatives to achieve scale and broader relevance.

In the investment landscape, the growing global interest in initiatives in the Amazon region often clashes with traditional financing models, which typically prioritize rapid and high returns. These models overlook the complexity of the regional context, which requires longer maturation cycles and a deep understanding of local realities. This misalignment undermines both investor expectations and the development of a resilient and sustainable business ecosystem.

III. Initiative Structure

> *“Our main goal is to provide everything an entrepreneur needs to grow their business – because the more the business grows, the greater its impact. That’s why we only work with companies that generate positive social and environmental impact.”*

– Mariano Cenamo,
executive-director of Amaz

Amaz Accelerator represents a strategic response to the structural limitations that hinder the growth of sustainable projects on the Amazon. Launched in 2021 by the Institute for the Conservation and Sustainable Development of the Amazon (Idesam), the accelerator was designed to transform promising projects into scalable and financially viable enterprises, focusing on initiatives that promote environmental conservation while generating income for local communities. Its approach is built on three pillars: capital, technical support, and relationship networks, forming a solid foundation to foster value

chains that preserve standing forests.

One of Amaz's key differentiators is its provision of direct financial investment. The accelerator offers up to R$400,000 in initial funding to each selected project, ensuring the support needed to scale operations. Initiatives that show robust performance may be eligible for additional investments of up to R$600,000, totaling as much as R$1 million per project. This model is essential to help projects overcome early-stage barriers such as high logistical and operational costs and advance toward more mature stages of growth.

Another core component of Amaz's strategy is its ability to connect ventures with investors. The accelerator views its role not as the sole provider of capital but as a catalyst, linking entrepreneurs with a broader network of national and international funders. This strategy ensures ongoing access to resources, enabling business expansion and increasing social and environmental impact.

In addition to capital, Amaz provides comprehensive technical support, helping entrepreneurs in areas such as strategic planning, impact management, legal and accounting advisory, and marketing. These services – often inaccessible in remote regions – are made possible through strategic partnerships with subject-matter experts, enabling businesses to build solid foundations and compete in demanding markets.

Social and environmental impact is also a key focus for the initiatives supported by Amaz. As such, the accelerator assists entrepreneurs in measuring the outcomes of their initiatives and communicating them effectively to both consumers and investors. Clear and compelling communication is essential to elevate Amazon-based products in markets that value sustainability and to justify the higher operational costs associated with doing business in the region.

IV. Impacts and Tangible Results concretos

Amaz has established itself as a catalyst for structural transformation in the Amazon, promoting forest restoration and sustainable use through innovative and collaborative strategies. By combining flexible financial instruments, specialized acceleration programs, and strategic partnerships, Amaz connects diverse actors across the ecosystem to generate meaningful and lasting socio-environmental impact. In its four years of operation, Amaz has evaluated over 500 projects, pre-accelerated 28, and directly invested in 13 initiatives working in sectors such as food, cosmetics, agroforestry systems, and carbon credits.

Amaz supports two distinct profiles of entrepreneurs: local and partner entrepreneurs. Local entrepreneurs come from Amazonian communities themselves and develop projects based on local opportunities and needs. With deep knowledge of regional dynamics, they often face challenges in areas such as management, fundraising, and market access. To support them, Amaz offers technical training, connects them to markets, and builds strategic networks, enabling these ventures to scale their impact and reach new levels of growth.

On the other hand, partner entrepreneurs – typically from large urban centers – bring solid experience in management and innovation but often lack local connections and a deep understanding of Amazonian communities. For these entrepreneurs, Amaz acts as a bridge, helping to refine their socio-environmental impact strategies and connecting them with local suppliers, markets, and investors.

Concrete examples illustrate the impact of Amaz's diverse approach. Founded by a female entrepreneur from Rio de Janeiro, Tucum has transformed the sale of Indigenous handicrafts into a tool for social impact. With support from Amaz, Tucum opened a physical store in Rio,

expanded its e-commerce platform, and generated over R$500,000 in sales of crafts from 20 Indigenous territories in 2023 alone. Its transparent pricing model ensures that 40% of the product price goes directly to the producing communities, strengthening their income and autonomy.

Other initiatives in Amaz's portfolio reinforce this mission, such as Cumbaru Parcerias, which restores degraded pastures through sustainable management of baru nuts, and Ekilibre Amazon, which transforms forest inputs into natural cosmetics, adding value to standing forests. In the food sector, Manawara connects regional production to conscious consumers through vegan and healthy products, demonstrating the transformative power of the bioeconomy.

Since its founding, Amaz has contributed to the conservation of 433,399 hectares of forest and directly benefited more than 750 families. Between 2021 and 2023, its direct investments of R$3.95 million leveraged an additional R$19.8 million in follow-on funding rounds, solidifying its role as a springboard for impact-driven businesses.[39]

By fostering synergy among entrepreneurs, communities, and investors, Amaz has strengthened sustainable enterprises and paved the way for a more robust and collaborative ecosystem.

V. Implementation and Continuity

Amaz has been working to build a robust, collaborative, and resilient impact business ecosystem in the Amazon, while recognizing that this effort is still a work in progress. Since launching its pilot acceleration program in 2018, the organization has achieved considerable progress but continues to face major structural challenges – chief among them, the lack of integration among various actors who could help strengthen this network. Creating a sustainable and inclusive economy in the region requires ongoing efforts to align interests, foster synergies, and overcome the historical barriers that have limited development.

With a long-term vision, Amaz is structuring a second investment fund aimed at scaling its impact by 2030. Its ambitious goals include the conservation of 10 million hectares and direct support for thousands of families. This initiative includes an innovative program that supports initiatives from their earliest stages, building a diverse portfolio across three primary areas.

The first focuses on fostering community-based enterprises by working with associations, cooperatives, and NGOs to turn local initiatives into sustainable initiatives. The second aims to transform scientific research conducted by universities and research institutes into viable ventures based on Amazon sociobiodiversity assets. The third engages experienced entrepreneurs from other regions and sectors, offering support to develop innovative solutions tailored to the Amazon context.

This strategy is designed to build a diverse network of early-stage, medium-sized businesses that can serve as role models for future generations of entrepreneurs – proving that it is possible to combine economic success with environmental conservation and social inclusion.

Scaling the Bioeconomy in the Amazon: Recommendations for Sustainability and Prosperity in the Region

The six initiatives presented throughout this publication represent distinct experiences that are connected by common threads. While each responds to the challenges of the Amazonian context with its own unique approach, they share points of convergence that highlight the fundamental role of communities in keeping the forest standing and in shaping viable economic alternatives. The first set of initiatives – linked to academia and grassroots organizations – demonstrates how the recognition of traditional knowledge can serve as a starting point for solutions that reconcile sustainable practices with economic development, with community-based management as a cornerstone for continuity and long-term strength.

The Ochroma Project illustrates this dynamic by transforming balsa wood into an environmentally safe alternative to mercury in artisanal gold mining, creating new economic opportunities for historically marginalized communities. In the Médio Juruá region, Asproc, through the sustainable management of pirarucu, proves that co-management of natural resources can generate not only environmental benefits but also increased productive autonomy and resilience for riverside populations. The experience of Kallari, in turn, reinforces that ancestral agroforestry practices can serve as a competitive advantage in international markets – demonstrating that models integrating environmental conservation and cultural appreciation can reposition Indigenous peoples within the global economy.

The second set of initiatives – comprising Origens Brasil Network, Belterra Agroflorestas, and Amaz – demonstrates that strengthening networks and understanding the dynamics of Amazon-based businesses pave the way for consolidating the region's bioeconomy. These experiences reveal that building sustainable value chains depends not only on production itself, but also on the presence of institutional and market infrastructure that ensures long-term viability and growth. One of the key takeaways is that integrating producers, markets, and investors is essential for sustainable initiatives to overcome structural barriers and become competitive.

Origens Brasil shows that traceability and transparency can go beyond being tools for monitoring – they also serve as instruments to value and strengthen sociobiodiversity, ensuring that forest-based products reach markets committed to fair trade and generate tangible benefits for producing communities. Belterra teaches that environmental regeneration and agricultural production are not mutually exclusive – so long as they are supported by well-structured models that reconcile conservation with economic security for producers. Amaz, in turn, demonstrates that strengthening the bioeconomy is closely tied to building an ecosystem of impact-driven enterprises, where entrepreneurs have access to financing, technical support, and connections to strategic networks.

More than isolated efforts, these experiences highlight that the transition to a robust and regenerative bioeconomy in the Amazon requires structural conditions that ensure the scalability and long-term sustainability of these models. What they all share is a commitment to generating value for local communities – and long-term continuity can be supported by accessible financing mechanisms that align with the forest's productive cycles, reducing the reliance on extractive and predatory practices.

Other factors highlighted in the case studies, such as technical training and community governance, can play a key role in enhancing the autonomy of local populations in managing their territories and value chains. Furthermore, building support networks and fostering integration across sectors – including communities, initiatives, academia, investors, and the public sector – contributes to a more favorable business environment for sustainable and competitive production models. These experiences reinforce the possibility of reconciling economic development, fair trade, cultural appreciation, and forest preservation.

To strengthen these experiences and enable new ones to emerge, we present a set of recommendations aimed at the public and private sectors, both at the global and local levels:

1. Direct investment toward regenerative and community-based enterprises through financial mechanisms that are accessible to small producers. The provision of patient capital[40] to small and medium-scale bioeconomy initiatives must be accompanied by technical assistance to support compliance with grant requirements. Moreover, governance models should be adapted to the local context, with the active participation of Indigenous and traditional communities.

2. Invest in infrastructure tailored to the Amazonian bioeconomy. Improvements in transportation, storage, and digital connectivity are essential to reducing logistics costs in sustainable value chains and expanding access to qualified markets.

3. Strengthen traceability and transparency in value chains. It is vital to implement systems that ensure product authenticity and sustainable sourcing, using accessible technologies that are integrated with local production chains.

4. Promote fair trade models and equitable relationships between producers and consumers, ensuring that communities and small-scale entrepreneurs have greater control over their products, pricing, and sales channels.

5. Enhance capacity building and knowledge exchange. Supporting learning networks among communities, researchers, and entrepreneurs reinforces local autonomy and drives innovation in sustainable production practices.

6. Support community leadership and expand participatory governance. Strengthening social organization in the management of value chains and territories ensures that decisions respect traditional ways of life and promote socio-environmental justice.

7. Promote awareness campaigns on the value of the sociobioeconomy. Encouraging responsible consumption and increasing awareness of the positive impacts of standing-forest products helps generate sustainable and conscious demand.

To strengthen sustainable value chains, foster innovation, and enable the transition to regenerative economic models in territories under pressure from lucrative illicit activities, bioeconomy support mechanisms must be effective for local communities. It is essential that financial and regulatory incentives be designed with a deep understanding of how they will be perceived by small producers and extractivist communities – from formulation to implementation and monitoring.

These measures have the potential to generate long-term positive impacts, reconciling environmental conservation with inclusive socioeconomic development. The challenge now is to transform these successful experiences into benchmarks for a new economic paradigm for the Amazon – one in which the standing forest and its people are the protagonists of innovation and sustainable prosperity.

Annex

Case Selection Methodology and Research Approach

The methodology used for this publication was developed to identify the best practices and lessons that illustrate how bioeconomy and nature-based solutions (NbS) can drive sustainable development in Amazonian communities. The process was structured in three main stages – selection, data collection, and analysis – with the goal of ensuring sample representativeness, information quality, and consistency of results.

Seleção

The selection process prioritized initiatives that offer sustainable economic alternatives through the use of sociobiodiversity products and agroforestry systems, as a response to the impacts caused by illicit value chains. The chosen initiatives featured a strong community-based component, characterized by local leadership, social mobilization, and the formation of alliances with stakeholders committed to long-term community development – elements considered central to both the implementation and continuity of action.

The methodological approach adopted recognizes the intersection between the concepts of bioeconomy, sociobioeconomy, and nature-based solutions (NbS), acknowledging their diverse applications and contexts without reducing them to fixed, singular definitions. These concepts are interrelated and continuously evolving, reflecting different regional, political, and economic perspectives. The goal was to ensure that the selected cases reflected the complexity of the socioeconomic and ecological dynamics involved in the transition toward a more sustainable and inclusive economy.

Among the cases analyzed are both well-established initiatives – such as Asproc and Kallari Cooperative, known for their long-lasting impact – and more recent projects – such as Belterra and the Ochroma Project, notable for their innovation, replicability, and scalability potential. Also included are network-based platforms such as Origens Brasil and the Amaz Accelerator, which play a strategic role in scaling the impact of emerging initiatives.

The selection criteria considered the relevance of each practice in addressing local socio-environmental challenges, the social and economic impacts generated, long-term sustainability, and the potential for adaptation and replication in other contexts. Additional factors evaluated included the area of operation, established partnerships, and the financing strategies adopted for each initiative.

Data Collection

The data collection process integrated both qualitative and quantitative approaches through a combination of document analysis and semi-structured interviews. Institutional reports, academic articles, publications specializing in bioeconomy, case studies, and technical documents related to the selected initiatives were reviewed, forming a robust and well-founded informational base. Semi-structured interviews, conducted using a shared interview guide, were carried out with leaders and members of the initiatives, allowing for in-depth insights into the challenges faced, solutions implemented, and lessons learned throughout the process.

In addition, supplementary consultations with subject-matter experts contributed to contextualizing the analysis and validating the interpretations presented. All data collected were systematized through interview

transcription and thematic organization of the content, ensuring an integrated and in-depth view of the cases studied. Whenever possible, the use of up-to-date sources was prioritized.

Case Analysis

The case analysis was guided by a structured framework designed to understand the dynamics, specificities, and impacts of the selected initiatives. The first step involved investigating the context and history of each project, including their origins, the factors that led to their creation, and the socioeconomic and environmental challenges they faced. This stage revealed recurring structural issues such as pressure from illegal activities, environmental degradation, and the lack of adequate infrastructure – elements that often threaten the long-term viability of these initiatives.

Another key aspect of the analysis was community engagement, assessed based on the active participation of local populations in the development and implementation of the initiatives. Strategies for community mobilization and empowerment – such as technical training and participatory processes that place communities at the center of decision-making – were carefully examined. This engagement emerged as a critical factor for long-term sustainability and success, contributing to the strengthening of local leadership and community resilience in the face of external challenges.

The analysis also examined how each initiative structured its financing strategies and partnerships. The funding sources accessed were largely the result of partnerships with private companies, civil society organizations, and governments – collaborations that proved essential to operational viability and continuity. Another distinguishing factor was the adoption of participatory governance models, which involve multiple stakeholders in strategic decision-making and ensure greater transparency and accountability in project management.

A critical point explored in the analysis was the impact of illegal activities in the regions where the initiatives operate, including deforestation, economic exploitation, and environmental degradation. The cases demonstrated that sustainable practices could offer viable economic alternatives for communities while also helping to mitigate the effects of illicit supply chains. Initiatives such as the Origens Brasil Network and Amaz Accelerator stood out for fostering value chains that directly compete with illegal activities, demonstrating that sustainable development and conservation can, in fact, go hand in hand.

Finally, the analysis considered the future outlook of each initiative, with emphasis on next steps, challenges, and opportunities. Community leaders and members highlighted the importance of expanding activities to new territories, strengthening already-established value chains, and exploring innovative mechanisms such as payments for environmental services. Key barriers were also identified, including high logistical costs and the need for more effective coordination among the various stakeholders involved. Despite these challenges, the cases underscore the replicability and scalability potential of successful models.

Throughout this process, interviews and document analysis were fundamental for capturing the complexity of local dynamics and extracting lessons that can inform broader strategies. These cases show how integration among communities, initiatives, governments, and civil society can generate lasting impact and transform local realities – while also contributing to global sustainability goals.

Endnotes

1. For the purposes of this study, illegal mining is defined as the extraction of mineral resources carried out without legal authorization or in violation of current legislation. This includes activities conducted in protected areas or Indigenous territories, operations without environmental licensing, or those employing prohibited methods. In Brazil, mining is regulated by the Mining Code (Decree-Law No. 227/1967) and Law No. 7,805/1989, which establishes the framework for artisanal mining permits (permissão de lavra garimpeira). Additionally, Article 176 of the 1988 Brazilian Constitution states that mineral deposits and other mineral resources are the property of the Federal Government, and their exploitation is only allowed through government-issued concessions or authorizations, in compliance with environmental regulations and the rights of affected communities.For more information, refer to the updated Mining Code (Código de Mineração) and Law nº 7.805/1989

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10. The construction of the nurseries has been carried out largely by the State University of Amazonas, with support from the Municipality of Manicoré and its Department of Agriculture, Production, and Supply. The project also benefits from collaboration with Unir, IME, and UFRJ, as well as funding from Fapeam and Fapero, and partnerships with private companies such as Bemol.

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12. The regatão is an itinerant trader who travels between regional centers and riverside communities, trading goods with small-scale producers and local merchants – often in exchange for agricultural and extractive products. For more details, see: McGrath, D. (1999) Parceiros no crime: o regatão e a resistência cabocla na Amazônia tradicional. Novos Cadernos NAEA vol. 2, nº 2. Accessed on: Feb. 12, 2025.

13. Chico Mendes Institute for Biodiversity Conservation (ICMBio). Resex Médio Juruá. Accessed on: Feb. 2, 2025.

14. Amazonas Government. Decreto nº 25.039, de 2005 – Criação da RDS Uacari. Accessed on: Feb. 2, 2025.

15. In 1999, the Mamirauá Institute developed the first community-based management model for pirarucu in the Mamirauá Sustainable Development Reserve, in the state of Amazonas. The success of the initiative led to its adoption as a public policy by the Brazilian Institute of Environment and Renewable Natural Resources (Ibama) in the same year. For more details, see: O Gigante Amazônico: manejo sustentável de pirarucu. Accessed on: Feb. 2, 2025.

16. The Coletivo do Pirarucu connects a range of sustainable management initiatives distributed across the Purus, Negro, Juruá, and Solimões rivers – regions historically affected by illegal activities such as predatory fishing, deforestation, and land invasions. The management process includes a critical territorial protection component, carried out by local teams responsible for monitoring rivers and lakes with the goal of preventing invasions and environmental crimes.

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21. The state of Amazonas is currently the largest buyer of sustainably managed pirarucu. However, initiatives such as the non-governmental organization Fish of Change – which uses fly fishing as a tool to educate and empower communities – are working to expand the market to other regions of Brazil and abroad. For more information, see: Instituto Juruá (2023). Fish of Change visa romper as fronteiras do mercado nacional e levar o pirarucu de manejo sustentável para o mundo. Accessed on Feb. 12, 2025.

22. Ministry of Agriculture and Livestock. Martins dos Santos, G. B. et al. Mercado de cacau fino no Brasil e no mundo. Accessed on: Feb. 2, 2025.

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24. Entry into international trade was facilitated by strategic investments and partnerships. The Jatun Sacha Foundation played a key role in providing initial funding and technical training for producers. Support from the Ecuadorian Canadian Fund and the European Union helped structure the value chain and secure certification for fine cacao. Private sector companies such as Scharffen Berger Chocolate and the German Technical Cooperation Agency (GIZ) provided technical assistance and helped develop markets for the cooperative's products. Entrepreneur Stephen McDonnell, founder of Applegate Farms, invested US$250,000 to create the Kallari Chocolate Company, securing infrastructure and access to premium markets. Santopietro, Jill. *The New York Times* (2008). When Chocolate Is a Way of Life. Accessed on: Feb. 5, 2025.

25. Kallari pays small-scale producers US$135 per quintal of cacao – US$30 more than what local traders typically offer in Ecuador and 12.7% above the minimum price set by the Fairtrade label. In comparison, in the global market, where small producers in West Africa receive an average of US$85 to US$100 per quintal, Kallari ensures compensation that is 35% to 60% higher. *Infobae* (2023). El cacao, un ingrediente más de una ciudad turística que "vende felicidad" en Ecuador. Accessed on: Feb. 13, 2025.

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27. *Prensa Latina* (2024). Napo, provincia con más niveles de pobreza en Ecuador, según encuesta. Accessed on: April 9, 2025.

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