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Company-community Partnerthips for the Commercialization of Non-timber Forest Products in the Amazon: a Case Study From Médio Juruá Region

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Global Development Studies

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Declaration

I, Estefania Luanda Menezes Moraes, declare that this thesis is a result of my research investigations and findings. Sources of information other than my own have been acknowledged and a reference list has been appended. This work has not been previously submitted to any other university for award of any type of academic degree.

Signature:  .....Date: 15/12/2022.

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Abstract

The market-oriented extraction of non-timber forest products (NTFPs) has been promoted as a win-win strategy, able to reconcile conservation and development goals while improving social welfare of rural forest dwellers. Company-communities partnerships (CCPs) is an emerging new approach in this regard, whereby local cooperatives, associations, or collective microenterprises are established so that the communities can sell goods and products to the companies. In order to develop effective policies and strategies for improving communities' livelihoods throughout the commercialization of NTFPs it is crucial to understand the dynamics of these partnerships, the actors involved, the nature of the deals, their impacts, and the ways in which they might be improved. As such, this paper seeks to explore the engagement between multinational companies and smallholder communities through CCP-NTFPs extraction of two Extractive Reserves located in Médio Juruá basin, a remote riverine region in western Brazilian Amazonia. A case study approach was applied to gather qualitative and quantitative data (semi-structured interviews and primary and secondary data from state and non-state entities and private actors. The results demonstrated the study population has succeeded in developing an efficient model of extractivism via the addition of value to the resources. It is true that the partnerships face some problematic issues, however, they are innovative and might foster future experiences that could enhance social equity and sustainability in extractivism in the context of protected areas in the Amazon region. I argue that, tailored public policies are urgent needed for poverty reduction of forest dependent people in the Brazilian Amazon.

Acronyms and Abbreviations

AMARU - Agroextractivist Residents of the Ucarai Sustainable Development Reserve

AMECSARA - Association of Extractive Residents of the São Raimundo Community

ASMAMJ - Association of Agroextractivist Women of the Médio Juruá

ASPROC - Association of Rural Producers of Carauari

CNS - National Council of Extractive Populations

CRSC - Riverside Trade of Citizenship and Solidarity of the Médio Juruá

CODAEMJ - Agro-Extractive and Energy Development Cooperative of Médio Juruá

DMUC - Department of Climate Change and Conservations Units

FAS - Amazonas Sustainable Foundation

FUNAI - National Indian Foundation

IBAMA - Brazilian Institute of the Environment and Renewable Natural Resources

ICMBio - Chico Mendes Institute for Biodiversity Conservation

IPS - Social Progress Index

MEB - Grassroot Education Movement

MMA - Ministry of Environment

OPAN - Native Amazon Operation

PA – Protected Areas

PGPMBio- Policy to Guarantee a Minimum Price for Sociobiodiversity Products

PMJ - Médio Juruá Programme

RDS - Sustainable Development Reserve

RESEX – Extractivist Reserve

SEMA - Secretariat of Environment State of Amazonas

SITWATI - Finance for Go

STRC – Rural Workers Union of Caruari

TI – Território Indígena

TJM - Médio Juruá Territory

TJM - Médio Juruá Territory Forum

UFAM - Federal University of Amazonas

USAID - United States Agency for International Development

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CHAPTER 1: INTRODUCTION

Amazonia is the world's largest remaining area of tropical rainforest and supplies key environmental services in terms of the conservation of biological diversity, climate regulation, and watershed management, as well as sequestering global carbon emissions. In addition, it is an important source of natural assets for both regional and national economic growth, and provides livelihood support to a population of several million (Hall, 2007).

In the Brazilian Amazonian, rural forest dwellers live in remote locations inside the jungle and secure their livelihoods by carrying out agroextractive activities, using their traditional knowledge to survive in the harsh environmen . However, while the estimated 25 million Latin American people living in forested landscapes have tenure or access rights to more than 200 million hectares of forest (Kaimowitz, 2002; Sunderlin et al., 2008), they still remain among the poorest populations (Poole, 2004). This is because the Amazon has been exploited at a runaway pace by external agents with little benefit for the local populations Ioris, 2015; Ribeiro et al. 2020).

The Amazon's crucial role in global climate and biodiversity is entirely dependent upon sustainable development in the region (Pokorny, 2013). From state-based developmentalism to community-based initiatives to market-based conservation, the Brazilian Amazon has been a laboratory of development interventions for over 50 years (Brondizio et al, 2021). Since forests are integral to the social fabric of the region, initiatives such as community forestry, small-scale tree plantations, and agroforestry have been undertaken to preserve them (Pokorny, 2013). In parallel with these efforts to protect and enhance the well-being of poor local smallholders, such as indigenous groups, traditional communities, and small farmers (ibid).

Grounded in modern neoliberal thinking, the contemporary development paradigm has shifted the focus to market-based approaches, aiming to resolve the social and environmental challenges of tropical forests (Pokorny & Pacheco, 2014). These market-based initiatives are promoted as win-win strategy, able to reconcile conservation and development goals while improving the social welfare of rural forest dwellers (e.g., Morsello, 2006; Antunes et al., 2021). As a result, the commodification of forest goods and ecosystems has been widely applied across tropical forest regions of the Global South (Buseth, 2020). This is especially

true in the case of the Braziliand amazon, where the commercialization of forest goods good and services has become the prevailing conservation approach (Toledo et al, 2017, Nobre & Nobre, 2018). Only by sustainable exploiting the Amazonian forests we will be able to preserve it, they say (Morsello, 2010).

Stimulated by the devolution of forest rights to rural communities in the Amazon in the 90s, with the creation of Protected Areas (PAs), community-based forest management (CBFM) has emerged as an important strategy in this regard (Antunes, 2021). It has been promoted as promising solution to conserve forest biodiversity, mitigate climate change, and improve welfare of resident populations (Humpries et al, 2020). In the Bazilian Amazon, CMBF arrangements vary by design, including agroforestry systems (SAFs), payment-for-ecosystem services (PES) and most relevant for the current study the market-oriented extraction of non-timber forest products (NTFP) (Antunes, 2021).

It is often suggested that extraction of non-timber forest products can prevent expansion of other ecologically unsustainable land uses in tropical forests (Assis, 1997). As such, Amazonian governments and aid donors have regarded the market development of extractive NTFP as means to forest conservation and thus, have invested considerable efforts to support forest-dependent people for the extraction and commercialization of non-timber forest products (citation). The idea is to increase the value of the standing forest as a productive asset superior to alternative uses, in order to encourage forest-based communities to manage forest resources sustainably (Richard, 1993; Antunes, 2021).

Company-communities partnerships (CCPs) is an emerging new approach in CBFM-NTFP, whereby local cooperatives, associations or collective microenterprises are established so that the communities can sell goods and products to the companies (Antunes et al, 2021). CCPs are supposed to change the configuration of power relations among stakeholders, and it implies shared responsibilities and risks in order to deliver benefits to all trade partners (Warner, 2003). It has also been suggested that defensible property rights and policy framework allowing the flexible development of partnerships, companies and communities can collaborate for mutual gains and broader benefits to the environment and society (Mayers & Vermeulen, 2002). While in other parts of the world, CCPs mainly concerns timber products (Mayers, 2006), in the Amazon, they are more oriented towards non-timber forest products (NTFPs), due to the negative reputation of timber exploitation in the region (Le Tourneau & Greissing, 2010).

While there have been increased company-community endeavors in Amazonia to supply NTFP commodities to the global market (Antunes, 2021), opinions on partnerships in the forestry sector remain divided. Previous studies have reported that positive local impacts of company–community deals include sharing of risks, opportunities for income diversification, access to paid employment, development of new skills, upgrading of local infrastructure and environmental improvement (e.g., Sousa et al, 2019). In addition, advocates see CCP arrangements as mechanisms for multi-stakeholder cooperation and broad-based development (Vermeulen et al., 2004). Conversely, critics have been more skeptical, pointing out several problems and traps associated with partnerships. For instance, a major criticism of CCPs that these agreements have not yet proved sufficient to lift people out of poverty, remaining supplementary rather than central to income generation (Mayers & Vermeulen, 2002). Moreover, there is little evidence of substantial increases in community bargaining power and more often than not, relations between companies and local communities are unilateral and exploitative (Herrero-Jáuregui et al 2011). Furthermore, the limited income-earning potential of extractive products in comparison with alternative land uses (Richards, 1993) may have little counteracting force against the main deforestation drivers in the Amazon, such as cattle ranching and soybean plantation (Antunes et al, 2021). In this panorama, such partnerships would be inadequate as an incentive to conserve forest ecosystems since other harmful activities would continue anyway.

Giving mixed conclusions as regards the outcomes of these agreements, understanding how the present-day Amazonian communities are articulating partnerships and participating in global networks is a research priority. Moreover, although much progress has been made in the community forestry literature, little is know about partnerships in the Brazilian Amazon, a recently growing phenomenon in the NTFP sector. By exploring the dynamics of these partnerships, this research will push further understanding on the topic, contributing to build up a theoretical framework within the community forestry field.

This thesis will examine the CBFM-NTFP and its company-community deals through a case study in two Extractive Reserves located in Médio Juruá basin, a remote riverine region in western Amazonia. The region is known by the strong social organisation and empowerment of its population. We examined the CCP's socioeconomic effects, specifically examining the potential and limits of its contribution to riverine communities' livelihoods. The context of the

Non-timber Forest Products (NTFP) extraction, both for trade or subsistence, taking place in the area will be analyzed, as well as the deals between the local associations and cooperatives and the corporate sector for its commercialization. In addition, the social and environmental impacts of these activities will be addressed it. As such, the thesis will try to answer the following questions:

1 - What is the context of the NTFP extraction and commercialization and the company-community deals tied to these activities?
2 – What are the contributions and limitations of these partnerships?
3 - What are the socioeconomic and environmental impacts of the NTFP trade in the study area?

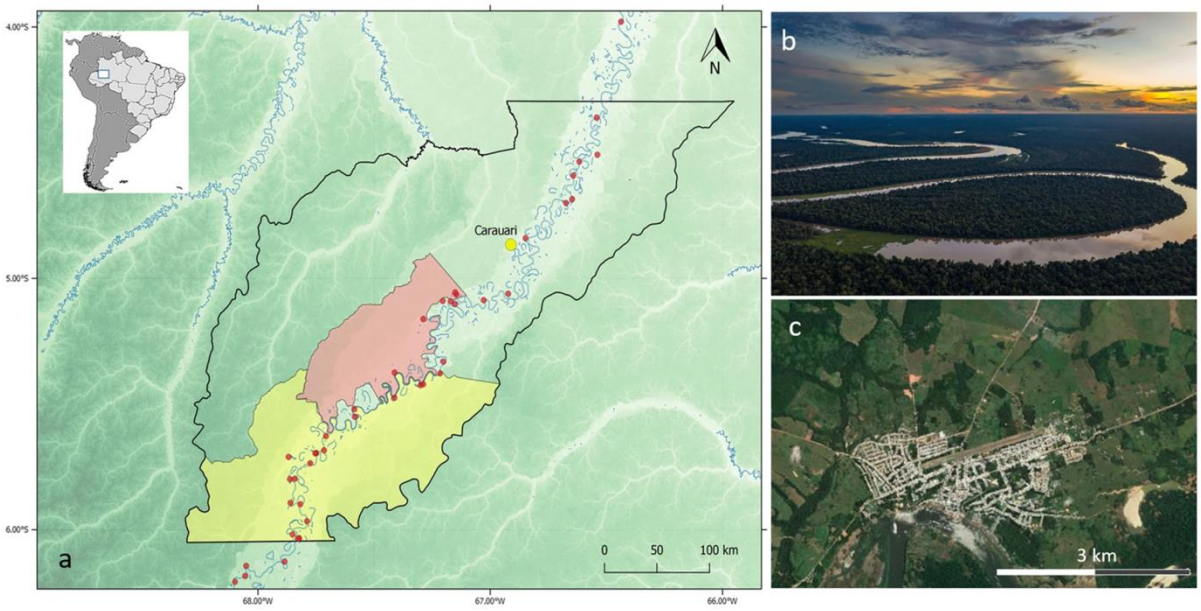
To answer these questions, the overall structure of this paper takes the form of seven chapters, including this introduction. Chapter two gives an overview of the study area. Chapter three lays out the theoretical dimensions of the research and looks at the political ecology of market-based approaches to conservation. The fourth chapter is concerned with the methodology used for this study. The fifth section gives a background context to the topic, giving a brief historical perspective of the development policies and practice implemented in the Brazilian Amazon and reviews the NFTP extraction efforts in the region. Chapter six presents the findings of the research, focusing on the two company-community partnerships currently taking place in the study area. The seventh chapter draws on the entire thesis, tying up the various theoretical and empirical strands in order to provide a discussion of the findings, including the limitations of the study. Finally, the conclusion gives a brief summary and critique of the findings and identifies areas for further research.

CHAPTER 2: STUDY AREA

The study area is comprised of two contiguous extractive reserves bisected by the Juruá River, a major tributary of the Amazon River, in the Municipality of Carauari, State of Amazonas, Brazil: the federally-managed Médio Juruá Extractive Reserve (hereafter, ResEx Médio Juruá) and the state-managed Uacari Sustainable Development Reserve (hereafter, RDS Uacari). The study area will be called therein 'extractive reserves'.

The municipality of Carauari lies in the middle course of the Juruá River, towards the state of Acre. The city, which was founded in 1911, has a territorial area of approximately 25,778 km² and an estimated population of 28,294 inhabitants (IBGE, 2022). The distance to Manaus (the capital of Amazonas) is 782 km in a straight line and 1676 km by the river – a seven-day trip – and is only accessible by boat or plane, as the nearest road is roughly 400 km to the south in the State of Acre (citation). The entire municipality is bathed by the Juruá River, constituting the most important transportation in the region, and is also a source of food for the local population (citation). The Juruá River has a length of 3283km and is considered to be one of the world's most sinuous rivers (Sousa & Oliveira, 2012*) (figure 1, b).* The Juruá River is the third largest white-water tributary of the Amazon River (Del-Rio et al, 2020).

Figure 1: Study Area



a) Solid black lines indicate de boundaries of Carauari municipality. Yellow and pink polygons represent, respectively, the RDS Uacari and ResEx Médio Juruá. Traditional communities' location is represented by the red dots. Carauri city location is indicated by the yellow dot.) aerial photo of Juruá river c) urban environment of Carauari (Source: Paes et al. 2021).

The ResEx Médio Juruá (in Portuguese: *Reserva Extrativista do Médio Juruá*) was decreed 1997 and is managed by the Chico Mendes Institute for Biodiversity Conservation (ICMBio) an administrative arm of the Brazilian Ministry of the Environment (IBAMA). The reserve lies in the right bank of the Juruá river and covers an area of 253,226.5 (ICMBio, 2011). The RDS Uacari (in Portuguese: *Reserva de Desenvolvimento Sustentável Uacari*) is administrated by the State Secretariat for the Environment of Amazonas (SEMA) and occupies an area of approximately 632,949.023 hectares (SDS, 2011).

The extractive reserves are jointly inhabited by some approximately 5000 legal residents, living in ~47 communities and settlements of 2-90 households each (source ICMbio and SEMA) stretched across ~2000 km of the Juruá river (Campos-Silva et al. 2021). The Extractive Reserves residents are caboclos[1], mostly descended from immigrant rubber-tappers (Morsello et al., 2012). The communities are located on the main river channel, whilst others are found on the banks of tributaries and oxbow lakes on either side of the Juruá River (Newton et al.

[1] *Caboclos*: 'traditional' mixed-race populations formed over the centuries through the mixing of indians with a small but steady stream of white and Afro-Brazilian immigrants to Amazonia (Hall, 2010).

2011). Both reserves are government-owned but all communities are granted equal, long-term usufruct rights to forest resources (ibid).

2.1 Climate And Vegetation

The climate in the study area follows the general characteristics of the region, hot and humid, with high rainfall and insolation, defined as a rainy tropical climate (Group A of the Köppen classification) (ICMBio, 2011). The average temperature of the coldest period is always above 18ºC and the hottest months have an average of around 26ºC (ibid). The relative humidity of the air is constantly high, in the limit range of 90% (SDS, 2010).

There is a huge incidence of rainfall in the region, with an annual average precipitation of 2,500 mm (ICMBio, 2011). The rainy season begins in November, reaching the highest rates between January and April, with an average of 224 rainy days, 40 of which in summer, between July and November, and 184 in winter, from December to June. Due to the high rainfall indices, the floodplain forests are covered by water that overflows from the rivers, characterizing the so-called "*periodo da cheia*" or the flooding period (Risek, 2006). The flooding period bears a significant influence on the lives of the households in the study area, as will be further demonstrated. The driest season occurs between August and November (Schweickardt, 2010).

The study landscape comprises two different forest types: seasonally-flooded (*várzea*) forest and unflooded forest (*terra firme*), which will (Newton et al. 2011).

2.2 Subsistence And Cash Economies

The rural forest dwellers comprising the study population are mostly smallholder peasant farmers, dependent on family labor who undertake a variety of agricultural and extractive activities for both subsistence and cash income (SDS, 2010). The reserve communities rely on a mixture of livelihood strategies, including fishing, hunting, logging, collection or extraction of forest products, small-scale agriculture and cash allowances from the government (ICMBio, 2011).

The agricultural activity practiced in the swidden fields (*roçados*) is primarily focused on the production of *farinha* (dry manioc flour), from the tubers of *Manihot esculenta*, a stapple carbohydrate and is the main economic activity of the study population (ICMBio, 2011).

Normally, the entire family is involved in the production process, which, consequently, becomes responsible for subsistence and income generation for families in the communities (SDS, 2010). The main agricultural products in the Juruá valley are: cassava, rice, corn, beans, potatoes, bananas, sugarcane (rapadura and brown sugar) (ICMBio, 2011).

Figure 2: Practice of Agriculture in the Study Area

A) Residents cultivating manioc. B)The production of flour involves both adults and children. C) The preparation of cassava flour involves soaking the cassava (Source: Vidal, 2019)

Figure 3 : Production of cassava flour in the Novo Horizonte community.

2.3 The Formation Of The Médio Juruá Region

The riverside communities in the Médio Juruá region are widely known for their high level of political organization (Campos-Silva & Peres, 2016). The riverside communities of Médio Juruá have a high organizational capacity to mobilize social actors of different scales and nature (ICMBio, 2011), and this is believed to be the driving force behind the main social changes and general improvement of their way of life. It is important to note that the protagonism of the people in the construction of local governance existing today in the territory was shaped by the union, empowerment and social organization, which reverberated in an important instrument that denotes this autonomy and is the driving force behind the maintenance of local social organization, the Forum of the Territory Médio Juruá -FTMJ, created in 2010, which brings together public and private organizations that operate or have an interest in acting in the region with the aim of integrating and strengthening mutual cooperation for the quality of life, biodiversity conservation and strengthening of production chains (Guimarães et al. , 2022; Juruá Institute, 2022; Partners for the Amazon Platform [PPA], 2022 *in Alves et a., 2022*).

Therefore, it is of paramount importance to review Médio Juruá history and understand its current governance and polycentric arrangements, which include rural forest dwellers, local associations, non-profit organizations, private companies and government agencies. What follows is a historical account of the spatial occupation of the study area, with a special focus on the social struggles for and creation of the extractive reserves to be liberated from the slavery-like conditions in the rubber economy period.

2.3.1The Rubber Economy In Médio Juruá Region

During the colonial period, the region of the Médio Jurua served as a source for indigenous slaves who were put to work elsewhere in the region (Cameron, 1999). The collection of the so-called '*Drogas do Sertão'* was the first form of extractivism practiced by capitalists in the study area (Araujo, 2008). With the discovery of the vulcanization process in 1839, this activity was gradually replaced by rubber extraction. During the 1850's and 60's rubber tappers from other parts of Amazonia began to make occasional forays to exploit the rich sources of rubber in the area and in 1869 the first *seringal*, or rubber estate, was formed (Cameron, 1999). Between the 1870's and early 1900's, vast amounts of land were claimed as *seringais* (plural form of seringal) by entrepreneurs who sought to make their fortune in the booming rubber economy (ibid) and, from then on, the first seringais (rubber plantations) were established, pioneered by Northeasterners who came to live in the rural area of the municipality (Araujo, 2008).

Rubber was widely exploited in the years between the two World Wars, in the study area, and for many decades it was its main economic in the region (Dean, 1986). During the rubber boom, the traditional peasantry in the Médio Juruá was socially structured in the relationship between the "*seringalista* house" and the "*barracão*" (shed) under the *aviamento*[1] system, in which subsistence goods and basic necessities were advanced against the future delivery of rubber (Schweickardt, 2010). The relationship between rubber tappers (*seringueiros*) and the rubber state owners (the *patrões)*, also known as patronage, was characterized by ambiguous domination, sometimes conflicting and other times complementary between the *seringueiro* and the patrão (Cameron, 1999). Through the debt bondage system, rubber tappers were obliged to sell all their products through the patrão, as well as often paying rent to him in exchange for usufruct rights (Richards,1993). Despite their oppressive features, the aviamento-system and the traditional patronage relations provided a social infrastructure essential for

survival in the forest (Assies, 1997). During the rubber economy, agricultural activities were essentially prohibited by the patrões, in order to avoid diverting the attention of the labor force from their basic tasks and to enforce relations of dependence (ibid).

This bond of dependence, especially in the absence of the state, was maintained because of its essential feature: the bosses' guarantee of protection in addition to the shared social and political networking (De Vries, 2002). In addition, the patrões played another important role in the local social infrastructure, acting as a mediator - a role that would later be occupied by leaders linked to the social movement and the Catholic Church (Schweickardt, 2010).

The decline of rubber as a commodity chain

When the rubber economy declined due to the plantations in Asia, followed by the development of synthetic substitutes, extractivism in Brazil only continued as a result of the government subsidies (Richard, 1993). However, despite government efforts to reactivate rubber plantations with incentive programs, rubber production declined substantially in the late 1970s (Dean, 1989). The end of the rubber subsidy in the late 1980s and early 1990s caused a drop in local production —many rubber tappers abandoned the activity or began to exploit timber and fishing resources from the region's lakes (Schweickardt, 2010). By 1985, rubber extraction was functionally nonexistent in the Juruá River, and seringueiros in the area had no means of subsistenced (ibid). Due to the delay of the State in occupying the region, the Jurua River, formerly subjected to the excesses and economic dominance of its patrões, was abandoned and impoverished (ibid).

In 1989, the economy of the region was based on the extraction and sale of wood, rubber and game meat (ICMBio, 2011). Manioc flour still was not considered one of the main commercialized products, since only 39% of the domestic units sold or exchanged part of the production on average 34 bags (Whitesell, 1993). In the 1990s, the extraction of wood and the trade of salted fish become the main economic activity in the region, however it was cause of great turmoil in the region. Large logging companies turned to the interior of the region in the period of the river flood. The pirarucu (scale fish) fishery during the dry season of the river, became the main means of support, being even exported in large amounts to Colombia. The exploitation of wood would appear as a second alternative (Schweickardt, 2010).

> "The rubber tapper on the Juruá River is forced to work to cut down trees out of necessity. The prices of your products as rubber and flour are so demeaning that it undergoes this work of destruction (which is not his nature). He wants a Extractive Reserve with all the conditions of life that it offers (Derickx, 2002: 53, *in Schweickard, 2010*)"

2.3.2 The first communities are created

As in the other rubber plantations on the Juruá River, the rubber tappers were sparsely distributed in locations along the course of the River (ICMbio:51). As of this time, no established communities existed, the families lived in the jungle near the *seringais*, isolated from each other. In the early 90s, the Catholic Church led by Father João Derickx, and the grassroot educational movement (MEB) began to implement a work of education and social awareness in these isolated rubber state locations, and the rubber tappers started to understand the importance of coming together as a community to fight against the situation of slavery they had been submitted (Schweickardt, 2011).

With the decline of the rubber economy in the area and the consequent reduction of obligations with the patrões, led to an increase in the social organization of the riverside population and the monetization of the commercialization of the agricultural and extractive production (ICMBio, 2011). The families, previously dispersed, sought to form clusters on the banks of the rivers. aiming to facilitate the sale of products and the acquisition of goods from the regatões[2] and also the access to some benefits such as, especially, schools for the children (Schweickardt:235). As a result, such clusters formed the first communities, firstly formed by members of one or two families, but, in some places, other families were incorporated into 'nuclei (Schweickardt, 2011). As this social organization evolved, communities began to form social networks and claim rights of common interest to all communities, which resulted in the creation of associations (ICMBio, 2011).

The high level of social mobilization of the extractive communities within Médio Juruá region is part of the greater political and organizational struggle of Amazonian rubber tappers for socioeconomic and cultural survival (Gonçalves, 2002). The Catholic Church's Liberation Theology movement during the 1979s and 1980s is among of the major enabling conditions to structural changes to the rural forest dwellers in the Brazilian Amazon (Leroy, 1992). Parish

[2] Regatão:

leaders and supporting organizations organized rural families into communities, often based on practices of collective governance and ownership (Burdick, 2019). Following Paulo Freire's methodology, they provided literacy and political education to marginalized rural populations empowering rural leaders and establishing rural workers' unions, forest peoples associations, and rural community associations throughout the region since the 1970s (Heyck, 2010).

The Catholic Church, especially the Dutch Father João Dereckx and the Basic Education Movement - MEB, played a fundamental role in the beginning of the organizational process of the rubber tappers and residents of the Médio Rio Juruá channel during the 1980s (Schweickdardt, 2010). The residents of the region and the leaders, still today, they attribute a good part of their achievements to the motivation of Father João Derickx (ibid).

As Professor Katia Schweickardt (2011) reports in her ethnographic study, at the time, agricultural cultivation was employed without any technology and no means for the commercialization of the agro-extractive production. MEB provided a boat, and one member of each family was allowed to go to Carauari and trade their agro-extractive products. After one year and a half, this scheme grew to such an extent that the boat was no longer able to bear the volume of the agricultural production, and the need to formalize an association arose. The embryo of the Association of Rural Producers of Carauari, ASPROC had borne and in 1991, the Association was formalized (ICMBio, 2011). ASRPROC the largest community-based organization in the region, and it will be outlined in the next section.

2.3.3 The creation of the Extractive Reserves

Gradually, the rubber tappers in Medio Juruá rivert started to get socially organized and as a reflection of the rubber tappers movement led by Chico Mendes in Acre and began to participate in meetings and events with other grassroots organizations to improve their situation (citation). Inspired by the creation of the first extractive reserve in Acre, the riverine communities within Médio Juruá river decided to fight for the creation of an extractive reserve in the region (citation). In the 1990's Assembly of the Rubber Tappers of the Médio Juruá region 22 communities, from both sides of the Juruá River, signed a petition demanding the creation of a RESEX (Schweickardt, 2010). The petiton was taken by Father Derickx to Brasilia, formalizing the manifestation of the residents request (Derickx & Trasferetti, 1992).

In 1997, the decree was finally signed after five years of mobilization, creating the ResEx Médio Juruá, the first extractive reserve of the Amazon state.

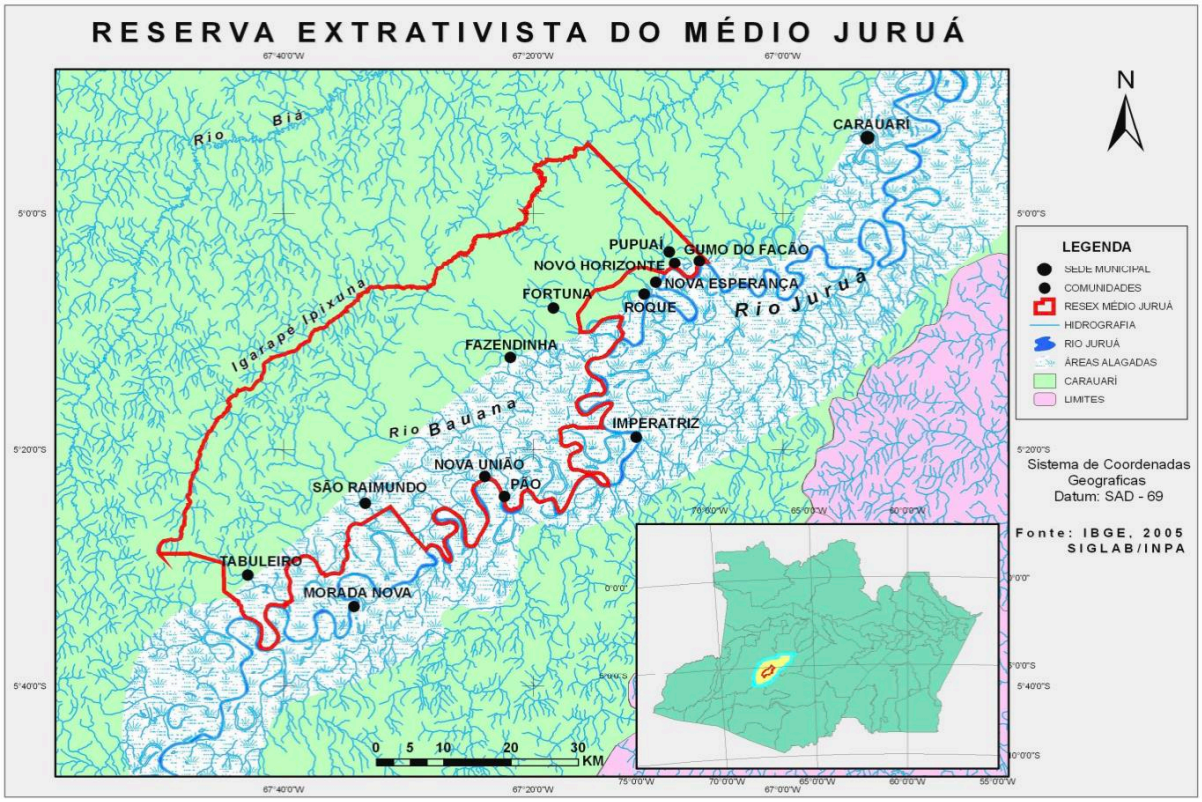


Figure 4: Perimeter of RESEX Médio Juruá and the location of the communities.

Source: Araujo, 2006

However, differently from what riverside communities had proposed, the decreed area did not include all communities, excluding the right bank of the Juruá river (SDS, 2010). The excluded families mobilized themselves and in 2003 a letter from the National Rubber Tappers Council, attached with a petition with 161 signatures of the residents from 8 communities demanded the creation of a conservation unit (ibid). In June 1, 2005, the Uacari Sustainable Development Reserve RDS Uacari was created (figure5) (ibid).

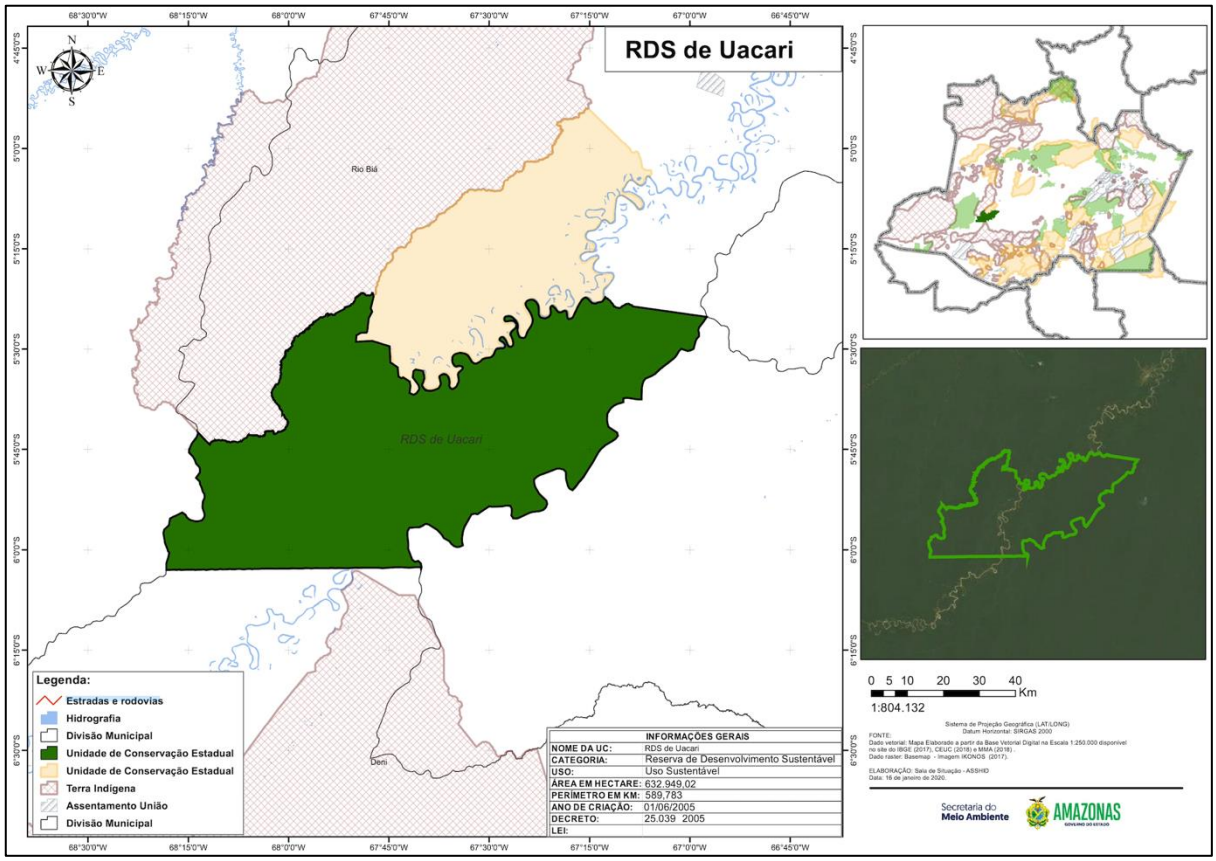


Figure 5: RDS Uacari perimeter

Table 1: Communities List

LIST OF COMMUNITIES			
RDS UACARI	Nº families	RESEX MÉDIO JURUÁ	Nº families
Bananal	2	Gumo do Facão	45
Barreira do Idó	9	Novo Horizonte	22
Bauana	18	Pupuaí	50
Boa Vista	11	Nova Esperança	84
Boca do Xeruã	2	Roque	137
Bom Jesus	47	Fazendinha	16
Bonfim	4	Fortuna	15
cachoeira	26	Maria Monteiro	7
Canta Galo	13	Imperatriz	27
Caroçal	3	Nova União	13
Idó	9	Ever	6
Lago do Pupunha	16	São Raimundo	38
Monte Carmelo	23	Santo Antonio de Brito da Resex	3
Morro Alto	20	Boa Vissta do Tó	7

Ouro Preto	25	Morada Nova	7
Porto Sadi	6	Tabuleiro	47
Santa Cruz	1		
Santo Antônio de Brito	24	Estirão do São José	2
São Francisco*	52	Manariam	1
Sao José do anaxique	20	Liberdade	1
Sororoca	14		
Sumaumeira	3	**Number of Families**	**528**
Toari	13		
Vila do Igarapé Preto	8	Number of communities	22
Vila medeiros	7	total inhabitants	~3168
Vila Ramalho	32		
Xibauá	19		
Xibauazinho*	47		
Number of families	474		
total inhabitants	~1500		
total communities	29		

The creation of the protected areas (PAs) represented an important legal milestone that legitimized the Médio Juruá traditional populations in their unique ways of life, fruit of the result of their organizational and political maturing in the defense of their territory (Alves et al, 2022).

The local associations play a fundamental role in the polycentric governance of Médio Juruá. Situated in Carauari, ASPROC is the largest community-based organization, representing all peasant families in the municipality. Other

Table 2: Associations and Cooperatives List

Community-based Organizations

Organization		Location
ASPROC	Association of Rural Producers of Carauari	Carauari
AMARU	Agroextractivist Residents of the Uacari Sustainable Development Reserve	Carauari
CODAEMJ		Roque

AMECSARA	Association of Extractivist Residents of the São Raimundo Community	São Raimundo
ASMAMJ	Association of Agroextractvist Women of the Médio Juruá	São Raimundo
AANE	Associação Agroextrativista da Comunidade Nova Esperança	Nova Esperança

THE RIVERINE CITZENSHIP AND SOLIDARITY TRADE PROGRAMME[3]
(*Comércio Ribeirinho de Cidadania e Solidário*)

There are some riverside communities in Médio Juruá that are within 52 hours boat ride of its nearest city, Carauari. To purchase basic items of consumption and sell their agro-extractive production, these families needed to head to Carauari or trade with the 'regatões[4]'. Regatões have the control of transportation in the region and therefore apply abusive prices on the goods marketed.

To acquire basic needs industrialized items and commercialize their agroextractive production the riverine communities within Medio Juruá river had to submit themselves to this unfair commercial relationship. To work around this situation, the rural producers of Carauari (ASPROC), in partnership with the CNS (National Council of Extractive Populations) and AMARU structured the Program Riverside Trade of Citizenship and Solidarity of the Médio Juruá (CRSC). Initially, from 1995 to 2000 the riverside trade was made by bi-montly trips on ASPROC's boat. From 2001 onwards few points of sales were established in few communities, and keep improving in the subsequent years, with support from Ministry of Environment and funding from Petrobrás and Banco do Brasil Foundation.

The CRSC is a successful enterprise in the area. Fourteen canteens (also called warehouses or marketing centers) are strategically located (figure 8), allowing each community to be within an hour of a fixed point of sale, making the commerce accessible to all. The canteens are intentionally located near the river (in the case of várzea communities) or roads (terra firme communities), to facilitate the movement of goods.

[3] (Source: Mazer, 2013; Pontes, 2013)
[4] Regatões: Itinerant river trader.

Currently, the canteens sell 132 non-perishable items to residents of the 55 riverside communities in the Municipality of Carauari. A policy established in the General Assembly defines the basket of items to be purchased wholesale in Manaus and distributed in retail in the canteens, at the lowest price sold in Carauari, and only the General Assembly can suggest changes to the shopping list. Customers can also place orders, which are typically for household appliances.

ASPROC currently uses two boats to make its round trip, which takes 12 to 15 days. On its outbound route departing from Carauari, ASPROC's boat supplies the canteens. In the returning trip, the boat collects agroextractive production of the villagers, including semi-processed rubber. It also provides transportation for the riverine residents between communities.

Figure 6: The Riverside Trade

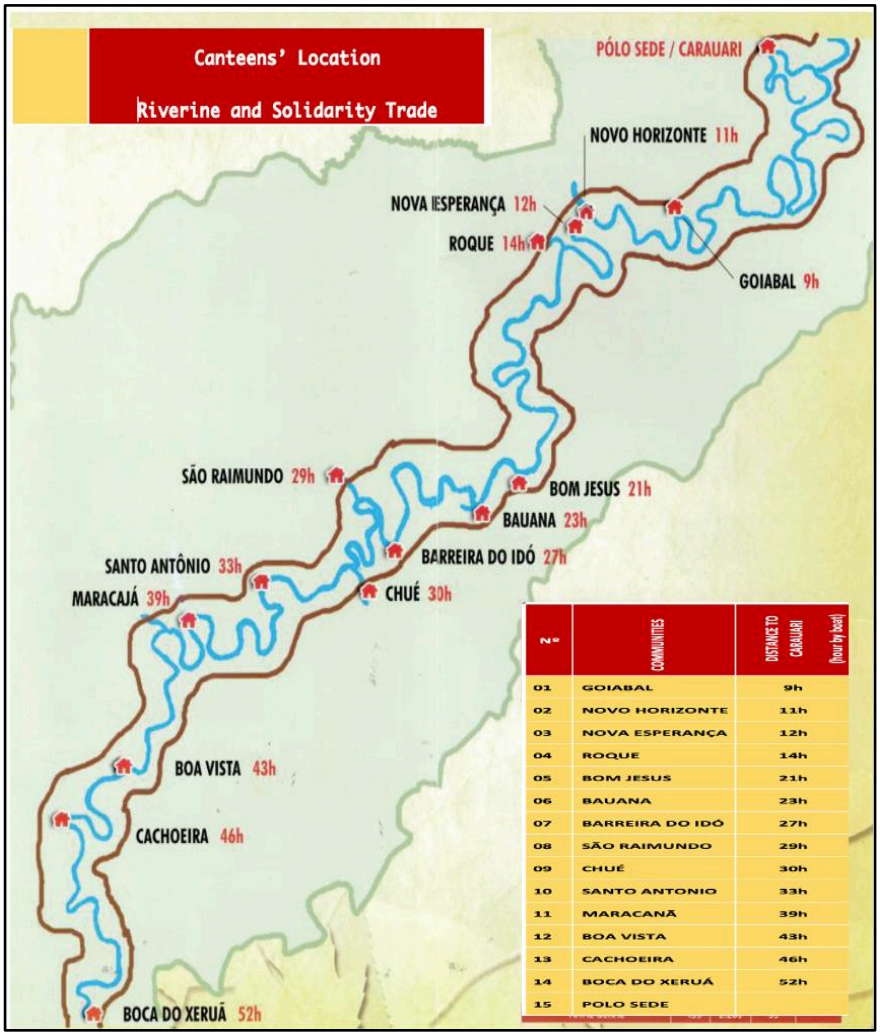


Figure 7: Location of the Canteens
(adapted from Mazer, 2013).

CHAPTER 3: THEORETICAL FRAMEWORK

This chapter will explore the political ecology of market-based approaches to environmental conservation with an emphasis on the Brazilian Amazonia. In order to understand the discourse dictating environmental governance in present-day Amazonia, a theoretical framework is proposed that locates this discourse within the analysis of power. Grounded in Foucault's poststructuralist perspective on power, political ecology theoretical tools and concepts are adopted to understand the power dynamics at play in the contemporary biodiversity conservation debate. This is done by first outlining the concept of Political Ecology and its power theories as they relate to the thesis topic. Subsequently, the dominance of neoliberalisation is discussed in the contemporary conservation debate. Finally, the Brazilian Amazonian context is contextualized within this analysis, focusing on the current development paradigm in the region and the prominence of the Bioeconomy.

3.1 Political Ecology

The field of Political Ecology emerged in response to global neoliberalisation in the 70s and 80s, seeking to critically investigate how external forces such as International Development and economic modernization strategies are key factors in reshaping the lives and environments of the poor around the world (Forsyth, 2002). Since then, the field has become known for critically analyzing the causal factors driving environmental change, including capitalist economic processes and power relations (see Peet et al. 2011; Perrault et al. 2015).

Political ecology as a scholarly field has been defined as the study of social and political conditions surrounding the causes, experiences, and management of environmental problems (e.g. Bryant, 1992; Zimmerer, 2000). Political Ecology seeks to understand the complex relations between nature and society through a careful analysis of forms of access and control over resources and their implications for environmental health and sustainable livelihoods (Watts, 2003). Bryan (1997), however, argues that a fuller description for understanding relevant Political Ecology topics revolves around clarification of the impact of unequal power relations on the nature and direction of human-environmental interaction with developing countries.

Power relationships are often complex, as power may be exerted by different means and at different levels. Power, in Foucault's (1982) understanding, designates actions and relationships between partners—however uneven—that induce self and others to act in particular ways. Thus, power is not necessarily repressive, prohibitive, or exclusionary, but produces social truths, reality, and individual subjects and structures (Foucault, 1977).

Foucault argues that power is only tolerable when it masks a substantial part of itself Foucault (1978). If exerted directly and coercively, power may not be effective in situations where subjects are not completely submissive, leading to reactions and conflict (Medina et al, 2009). Consequently, the success of power is proportional to its ability to hide its own mechanisms. Discourse is one indirect means of exercising hidden power (ibid).

Similarly, neoliberal conservation strategies tend to involve novel forms of power relations, working through rather than merely upon or against local identities, subjectivities, and livelihoods (Holmes & Cavanagh, 2016). In other words, conservation regulations are moving from being an external force to working within the lives of rural people, changing their behaviour not just by threatening them with the law and its agents, but also by appealing to economic rationales and altering values and ideologies (ibid). This is particularly relevant in the Amazona region, where the rapidly advancing development frointiers are putting local communities into contacting with external players highly interested in their forest resources (Medina et. al 2009). Discourse in the contemporary Amazon increasingly plays a role in exercising power and influencing local society as well as natural resource management, assuming a dominant role in defining governance regimes by dictating the sense of what is correct and socially acceptable and what is not.

3.2 Neoliberal Environmentalism / Market-based Approaches to Conservation

In recent years, a large body of literature within the political ecology field has become focused on the increasing relationship between conservation and neoliberalism (Büscher et al., 2012; Igoe and Brockington, 2007; Holmes and Cavanagh, 2016; Sullivan, 2006). These analyses demonstrate that conservation policy has become infused with a neoliberal economic philosophy promoting among other elements the mainstreaming of market-based conservation instruments, the normalization, institutionalization and expansion of public–private

partnerships, and the legitimization of private sector's decisive role in nature governance (Fletcher, 2010, Apostolopoulou et al, 2021). Essentially, neoliberal conservation's main message is that economic growth and nature protection are compatible rather than mutually exclusive.

Those who support this view contend that only by merging conservation and capitalism can nature be saved, as ecosystems are viewed and evaluated in capitalist terms in what was labeled by McAfee (1999) as ''selling nature to save it". This view is supported by Igor et al (2010), which note that neoliberal conservation overlooks capitalism's environmental contradictions and instead presents capitalism as the key to future ecological sustainability.

In their classic critique of neoliberal biodiversity conservation, Brüscher et al (2012) argue that conserving nature has paradoxically become the friend of capitalism. He goes on to say that, through purporting to take in hand the saving of the environment, capitalism invents a new legitimation for itself: the sustainable and rational use of nature .

Similarly, Sulivan (2006) notes that, through the neoliberal conservation thinking, human relationships are reduced to sustainable consumption and custodial practices for livelihoods or profit. These threads comprise what she calls "the elephant in room":' intentional avoidances of the conservation discourse which emerges and sustains the current neoliberal episteme.

Within the conservation practice, this neoliberalisation is identified in a myriad of trends, including the promotion of economic activities (e.g. ecotourism, bioprospecting, and payment for environmental services) to commodify natural resources and create a market for their exchange and the devolution of resource control to NGOs and local community members (Fletcher, 2010). In addition to the commodification of natural resources and services, this neoliberalisation include other trends such as the growing prominence and power of big international environmental NGOs (the so-called 'BINGOs'), the increasing partnership among these BINGOs and corporations and transnational institutions like the World Bank and the International Monetary Fund (Levine 2002; Chapin 2004) and the devolution of resource control to NGOs and local community members and the consequent decline of the state-centred command and control conservation (Brockington 2002; Igoe 2004).

While it might be tempting for critical researchers to conclude that neoliberal conservation always has negative impacts on human wellbeing, it is also necessary to acknowledge the empirical instances in which positive impacts were observed. In an investigation into the social impacts of neoliberal conservation projects, Holmes & Cavanagah (2016) reviewed empirical case studies and its impacts and what these projects entail for local communities and found that a neoliberal conservation project had brought extra income This is because private-community partnerships in Uganda allowed local residents to earn money from ecotourism (Ahebwa et al., 2012). Positive impacts can also include more secure land tenure (Stevens, 1997; Berkes, 2009), increased income from ecotourism and payment for ecosystem service (PES) schemes, secure or reliable access to natural resources and ecosystem services, employment opportunities, insulation from natural hazards, and compensation schemes for either direct or opportunity costs of conservation (Dudley & Stolton, 2010).

Green Economy

Market-based strategies became central to thinking about not only biodiversity conservation, but also sustainability more widely (Adams, 2017). In parallel with the engagement of biodiversity conservation in neoliberalism and the associated adoption of market-based languages and strategies, the wider environmental movement has been reformed around the concept of the 'green economy' (ibid). The 2012 Rio+20 United Nations Conference on Sustainable Development (UNCSD) placed the 'green economy' within the context of sustainable development and poverty eradication on the international political agenda (Wanner 2015).

There are many ways in which the 'green economy' is being implemented in practice, but there is an overwhelming emphasis on market-based and technological solutions to environmental challenges (Scoones et al., 2015). In industrialized countries, the focus is usually on investments, technology and innovation in renewable energies, as well as making fossil fuels more energy and cost-efficient in line with ecological modernization (Mol and Spaargaren, 2000). In the Global South, however, green economy measures are usually implemented in natural resource sectors (Brown et al., 2014; Bergius and

Buseth, 2019; Cavanagh and Benjaminsen, 2017), as in the case of the Brazilian Amazon.

In the Brazilian Amazon, the concept of Green Economy has been translated into the through the concept of Bioeconomy. The 'green economy' agenda has strongly influenced the contemporary Amazonian development efforts. Concepts such Bioeconomy, Standing Forest, Economy of the Forests are the mainstream trends in the contemporary Brazilian Amazon. The private sector, governmental bodies and international donor and is extremely involved as well as. Initiatives such as Amazonia Third Way, the Partnership Platform for the Amazon and The Amazon Bioeconomy Forum (F2iBAM) are examples of private initiatives within the green economy in the region.

CHAPTER 4 RESEARCH METHODS

As an International Development Studies graduate, I have consistently been interested in studying poverty and related issues. The importance of protecting the Amazon rainforest to tackle climate change has dominated the conservation debate, posing the question: what might these changes mean for forest people, especially for the Amazonian non-tribal population, who are rarely addressed as the main topic in the literature?

During my literature survey, I came across the Médio Juruá traditional community and was truly fascinated by how this riverine population was able to overcome barriers, organize as a community, and comprehend the importance of collective action. Collaborating with João Victor, president of the Médio Juruá Institute[5], played a significant role in my decision to choose Médio Juruá as a case study. The passion he has for Médio Juruá and its people is beautiful, genuine, and incredibly inspiring. Learning more about these people's stories made me fall in love with them. Unfortunately, it was not possible for me to conduct fieldwork due to COVID restrictions imposed by Norwegian authorities and the NMBU administration. As a result, I designed a thesis that would enable me to carry out the study while being in Norway.. The following paragraphs describe how data was collected:

4.1 CASE STUDY DESIGN

Research strategies play an essential role in the conduction of research and methods of data collection and will also influence the study. Accordingly, this research adopts a case study approach, using qualitative and quantitative methods to generate a deep, multifaceted understanding of a complex problem within its real-life setting (Crowe et al, 2011). This design is widely used across a wide range of disciplines, particularly the social sciences and it is more prominent when

This case study analyzed resident populations working in the Non-Timber Forest Extraction activities of two protected areas in the Médio Juruá region, Amazonas (figure 8). The NTFP initiatives object of this study are led by three community-based representative associations:

[5] Instituto Juruá is a grassroots non-profit organization formed by conservationists and researchers. It works in close partnership with community leaders and local associations to provide financial and technical support for community-based initiatives of natural resource management and offer capacity building opportunities for local communities to help them sustainably manage their natural resources and protect their territory. https://institutojurua.org.br/en/home-en/

ASPROC, AMARU, and CODAEMJ. These three associations are the leading actors in NTFP trade within the study area, through which they articulate with other relevant governmental and non-governmental actors.

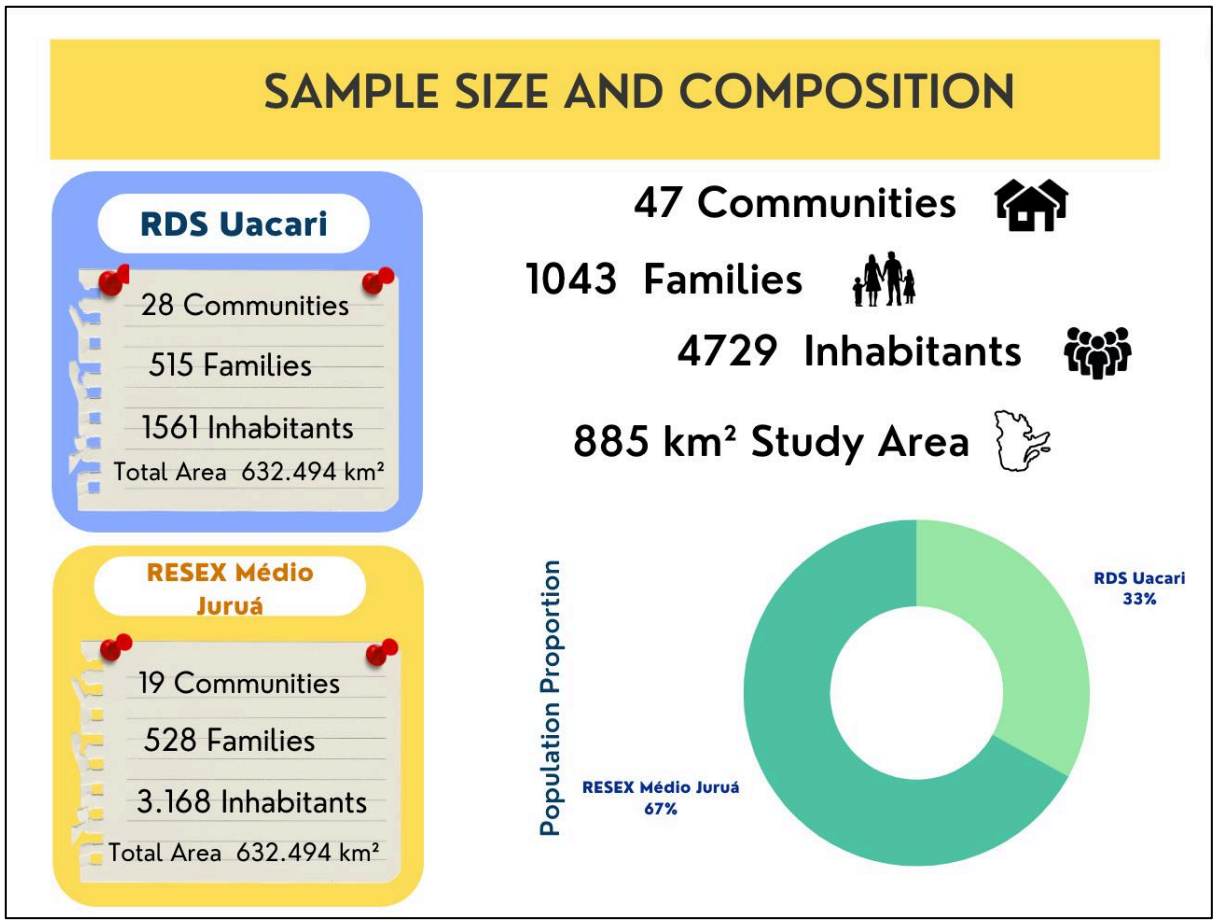


Figure 8: Characteristics of the Study Area

I selected traditional communities within the two Protect Areas in Médio Juruá region as a case study due to the solid social organization and empowerment that these agroextractive communities possess. In addition, these communities can be considered one extended traditional population intersected by the Juruá River.

4.2. DATA COLLECTION AND ANALYSIS

The data collection in case study research is typically extensive, drawing on multiple sources of information, such as observations, interviews, documents, and audiovisual materials (Cresswell 2013). The data collected for this thesis were obtained by using a mixed-methods

approach, gathering both qualitative and quantitative data, as a way to triangulate the findings. Documentary analysis and semi-structured interviews were complementary techniques used.

Data Collection

Obtaining data was the most challenging aspect of this study. One of the main barriers I encountered was the remoteness of the study area inside the rainforest with poor access to electricity, internet, and other essential needs for international communication. In addition, due to the limitations posed by not being able to conduct fieldwork or to be able to interact face-to-face with reserve residents, I found it even more difficult to obtain information. As a result, the data collection lasted until nearly the end of my writing process.

I obtained the initial selection of interviewees with the support of NGOs operating in the region. Then, a snowball sampling technique was employed. Interviewees would indicate other prospect interviewees. Organization representatives (stratified in three categories: local-based, private and public entities), community members and community leaders were interviewed.

The local population interviewees, including the community leaders, resided in different communities within the study area, taking part in different extractive activities related to the topic of this thesis. As such, the interview script would differ by the interviewee category, and include the region's history, livelihood strategies, labor duration and generated income, the relationship between different stakeholders, relevant initiatives and programs related to the local families' livelihoods in general, and NTFP extraction in particular.

Semi-structured interviews were primarily obtained using online communications. While when comparing digital to face-to-face interviews, online interviews are more at risk of the interviewee dropping out of the exchange, Mann & Stewart (2000) suggest that a relationship of mutual trust can be built within digital communication. They observe that not only this kind of relationship can make it easier for a longer-term commitment to the interview to be maintained but also makes it easier for the researcher to go back to his or her interviewees for further information or reflections—something that is difficult to do with the face-to-face personal interview (ibid).

I can personally attest to these findings. While initially, I assumed it would be extremely hard to build a trusting relationship with the riverine people by talking to them remotely, it was possible to build a strong relationship with many participants. My impression is that the fact

that someone from the other side of the world has become interested in a distant and remote region, such as the Medio Juruá, and most importantly, in its people, raised a sense of pride, as they are being acknowledged as an example of successful community-based forest management model (which is true). Moreover, I can corroborate that it is beneficial to have the possibility to reach out to the interviewees for additional information, which I personally consider one of the most advantageous aspects of conducting online interviews.

However, there are several disadvantages. Among the 47 communities and isolated households comprising the study area, only a few possess internet connections. This limitation created a major inconvenience that resulted in sampling interviewees from different locations within the study area. This meant that interviewees were residents of the most developed communities and I did not have the possibility to reach out to reserve residents living in more distant communities in relation to the urban center Caraurari.

Another feature of the e-research is the possibility of obtaining data from organizations through electronic ways (Bryman, 2016). That was my main source of primary data gathered from the cooperatives and local associations and also private partners and government institutions composing the governance in Medio Juruá. I sent official memos, requesting demographic data, information of the productive value chain, such as production output, the volume of the extractive production of the local communitie

Additionally, digital research creates the opportunity to obtain electronic data from organizations (Bryman, 2016), which I did by requesting various data from the cooperatives, local associations, private partners, and government institutions.

The process of obtaining primary data from government and non-governmental entities deserves a more detailed explanation. This was by far the most difficult part of the data collection process. It took me months to gather a minimum amount of data that was sufficient to be analyzed and to reach a conclusion. There were some organizations that took a long time to respond, and some never responded back, posing an enormous challenge in the data analysis and the results, and discussion sections. This situation only improved (although not entirely) when I managed to find a research assistant based in Carauari. This support was paramount to getting the data set, as the research assistant was a clever and very resourceful person. As a local person, she was well-known within the community and the governance structure. The

research assistant helped me to follow up on the requests I made and connected me with key interviewee sources.

The pertinent documentation related to my thesis was submitted with all official requests (NSD project authorization, informed consent where a summary of the research is given, including the research questions and contact information of my thesis supervisor and NSD officer in charge of my research project).

Some community-led organizations had very specific protocols for providing information, including that the request must be addressed by the board before it can be granted. Due to the fact that some board meetings are held twice a year, my request could not be voted upon until the next meeting in December 2022. In another case, I received a reply from a government agency requiring me to complete a nine-page application before I could receive the requested information. Usually, this application is required when the researcher conducts fieldwork on the reserve, which was not my case. A situation of this nature reflects the dominance of bureaucracy in Brazil's public and non-public affairs. Having served as a public civil servant in Brazil myself, I have a deep understanding of this issue.

The data set consists of semi-structured interviews (n=29), and primary documental data obtained from community-based organizations, NGOs, public institutions and the private sector. Interviews occurred between September 2021 and November 2022. In total, I conducted 26 semi-structured interviews, constituting my primary source of data. With two exceptions, all interviews were performed remotely (via WhatsApp voice and video call, Zoom, Teams, Google Meet, and telephone calls).

The documental data set includes primary data from local cooperatives and associations, accounting and expenses reports, meeting notes from the assembly; datasets from governmental agencies such as IBGE and INPE, besides documents from NGOs and corporate actors.

Another important source of data is the secondary data accrued from important studies conducted in the study area. These studies include Ph.D. and Master dissertations as well as academic articles. I spoke with several authors in order to gain a deeper understanding of the social dynamics and ethnographic characteristics of the study area

Data Systematization and analysis

The data was processed by descriptive analysis proposed by Vieira (2002), which is widely used due to the possibility of knowing and interpreting the studied reality without influencing it. This also allows the inclusion of information about beliefs, visions, desires, explanations and opinions on different topics.

The data was organized in Microsoft Excel tables to facilitate interpretation and diagrams illustrating the quantitative results. The descriptive statistics of the collectors earnings were performed using summary measurements with absolute value, sum, mean and quartiles, and bar and dispersion graphs. To perform the statistical analysis, the software Jamovi 2.2.5 and Prisma v8 were used. The document analysis supported data collection and fact-checking for my interpretation.

4.3 ETHICAL CONSIDERATIONS

Ethics play a crucial role in the design of a research project. Accordingly, a research project should incorporate ethical considerations at every step, from selecting the research objective and research questions to choosing methods and theories and considering validity (Maxwell, 1996). Researchers should be aware of the principles of research ethics from the initial design, which should aim at the public good (and do no harm) and continue continues until the communication of results, which should ensure transparency, publicness and replicability (Shrader-Frechette, 1994). As noted by Scheyvens and Banks, "ethical principles should inform all stages of research, from the inception of a research project through to writing up results" (2014, p: 160). As such, the present study does not see any ethical challenges relating to choice of topic, framing and results of the study. Similarly, there is no conflict of interest, since the present study is not sponsored.

As for the sample and data collection, all the data collection process was carried out with observance of ethical principles of research. During the data collection process with organizations and community members, I was subject to the national laws and ethical guidelines both in Norway and Brazil, and the internal norms of the cooperatives and associations where I collected data.

Prior informed consent was obtained from all respondents. Due to the sample characteristics, the riverine residents consented orally, while NGOs, private actors and government agency

interviewee agreed to participate in written form. All the interviews were conducted with prior information and consent. In line with the agreement set with NSD, and also stated in the informed consent, this thesis does not include the informants names.

CHAPTER 5: BACKGROUND

The Amazon rainforest is the largest tropical forest in the world, extending to 4 countries and home to the greatest biodiversity on the planet, with more than 20% of the total number of species on the Earth (MAPA, 2019). The Amazonian biome occupies 60% of Brazil's territory, and although its importance for the global climate and biodiversity is indisputable, it contains another treasure: its people. Indigenous tribes, traditional communities, and riverside populations are equally important in terms of cultural traditions, and their rich culture and ways of life must be preserved. To be able to understand the present-time Amazon, it is necessary to review its history. Accordingly, this chapter will provide a brief overview of the history of the Amazon, examining its developmental phases until the present time, and it will discuss the relationship between the rubber booms and the historical occupation of the region.

THE RUBBER BOOM CYCLES

The origin of extractivism as economic exploitation in the Amazon can be traced to the early 17th century and can be divided into two distinct phases. The first phase was marked by the exploitation for export of forest products known as *drogas do sertão* (sertão drugs) and the main products explored were cocoa, oilseeds, medicinal herbs, cinnamon, vanilla, woods, and animal derivatives (Almeida, 1992).

The second phase refers to the use of rubber tree latex as raw material for industrial purposes, known as rubber boom. It started in 1823, led to the discovery of waterproofing by MacIntosh in the same year, and was later intensified by the discovery of the vulcanization process by cin 1839. As a result, rubber production worldwide increased dramatically, from 1,000 tons in 1850 to 8,000 tons in 1870 (Homma, 2003). In the period from 1840 until 1910, large numbers of Northeasterners migrated to the Amazon, motivated by the necessity of providing additional labor alongside the indigenous people, as well as the occupation of new areas, so that a rise in production could be achieved (Homma, 1993). From 1912 onwards, the Brazilian Amazonian rubber economy began to decline, primarily due to the exploitation of rubber plantations in Southeast Asia (ironically formed from seeds Englishman Henry Wickham brought from the Amazon in 1876), which proved to be more productive and easier to cultivate (Esteves, 1993). Following a period of stagnation of 30 years (1912-1942), the rubber of the Amazon was exploited again, now motivated by the Japanese invasion of the rubber plantations in Southeast

Asia, which cut off the supply of raw material to the World War II allies. This renewed boom in the Brazilian Amazonian rubber industry was called Batalha da Borracha (or "rubber battle") and lasted from 1942 to 1945 when the exploration was abandoned. Following the rubber boom, and until the 1960s, migration to the Amazon continued at a slow pace, largely determined by the drought cycle in the Northeast (Parker 1985). The post-1960 boom in road building and subsequent colonization of parts of Amazonia has had varied impacts on the caboclo populations (Cameron, 1999).

The exploitation of rubber trees determined the form of occupation of the Amazonian territorial space, since the families that migrated there to meet the need for labor to extract latex for the production of rubber (Castro, 2002). The migrants were sparsely distributed along the rivers in locations identified as having an economically advantageous amount of rubber trees for exploitation (ibid).

The *seringueiros* (or "rubber tappers"), as the rubber workers came to be called, were installed by people who held the domain of large estates (called *patrões or seringalistas)* under the economic and territorial dominion to which they were subject. The *patrão* was responsible for supplying necessities, imported from large centers, as well as being the only buyer of rubber and other eventual forest products (Almeida, 2002). In this way, the worker had to submit himself, with no other alternative, to buy the goods offered by the patrãot, just as he was forced to sell his products under the conditions imposed by the boss (Cameron, 1999). This was a highly unfavorable condition for the rubber tapper who, as a rule, was always in debt and had to work harder and harder to try to balance his debt .

DEVELOPMENT AND COLONIZATION PHASE (1960-1990)

This Developmentalism or Colonization phase was a period characterized by destructive, pro-expansion, and modernization policies in the Amazon. Between 1960 and 1990, state-based development schemes promoted top-down, large-scale infrastructure and land occupation, causing high rates of deforestation, land ownership concentration, and social inequality (Brondizio et al, 2021). Essentially, this paradigm has its roots in the Modernization theory, which sought to replicate development processes in established industrialized nations through the elimination of traditional practices in favor of a more "modern" commercial economic system. (Garret et al, 2021).

After the 1964 military coup, the neglected Amazon region was brought to the forefront of the government's attention through Operation Amazonia, which was summarized by its slogan, 'land without men, for men without land" (Hecht & Cockburn 2010). As part of its efforts to secure geopolitical control over the region and its valuable resources, the government intended to occupy areas along the national frontier. Consequently, a series of road-building programs were initiated by the military government to facilitate the expansion of commercial agriculture and extractive industries in the Amazon as well as settlements of colonialists (Pokorny et al 2021).

As part of the National Integration Program, the occupation of the Amazon intensified during the 1970s. The federal and state governments implemented agrarian reform policies that resulted in the settlement of more than 1.25 million households (mostly from the South, Southeast, and Northeast) in more than 9,100 settlements all over Brazil by 2013. (Garret et al, 2021).

From the mid-1980s onwards, the conservation discourses of middle-class environmentalists, rubber tappers, and indigenous movements converged with international debates on biodiversity conservation, indigenous people's rights, and climate change mitigation (Pokorny et al. 2021). Following these events, the Brazilian government adopted a conservation discourse and explicitly acknowledged Brazil's responsibility to protect its forests.

A PARADIGM SHIFT: THE SUSTAINABLE DEVELOPMENT PHASE / THE SOCIO-ENVIRONMENTAL MODEL (1990-2009)

Following the United Nations' Rio Earth Summit in 1992, a unique version of transnational socio-environmentalism emerged along with programs to strengthen environmental policies, expand environmental monitoring, and demarcate Indigenous lands and protected areas (Pokorny et al. 2021). Several articles in the Brazilian Constitution of 1988 were devoted to establishing sustainable development, protecting the environment and biodiversity, conserving the Amazon forest, and recognizing indigenous rights to their land. (Toledo et al. 2017). Now, This socio-environmental model with the mobilization of regional populations and the participation of local communities in the management and use of natural resources received the support of NGOs as well as that of the representatives of the local populations,

and a dialog was established between the different public entities and environmentalist movements (Buclet, 2010)

THE POST-ENVIRONMENTALISM ERA (2010-2018)

The decline in socio-environmental policies after 2010 has led to an increase in market-based nature conservation initiatives, such as voluntary compensation schemes, certification programs, and multi-stakeholder roundtables (Piketty et al., 2015). In parallel to these advances, state-based developmentalism has resurrected, including the systematic dismantling of environmental policies and monitoring systems, the expansion of large infrastructures, and illegal deforestation. and continuing land conflicts Lle-torneau 2015).

Government infrastructure programs, such as establishing hydroelectric power plants in the Brazilian Amazon, along with the rapid expansion of large-scale mining operations and agribusiness, have led to a new chapter in Amazonia's economic and environmental history (Lees et al. 2016). Major agribusiness companies and mining corporations have adopted notions of sustainability as a way to justify appropriating and commoditizing nature, and as such, market forces are regarded as the most appropriate mechanism for preserving - and controlling - natural resources. (Toledo et al. 2017) In reality, this is not merely a return to the development-centered ethos of pre-1990, but rather a post-environmentalism policy in which social and environmental sustainability concerns have been replaced by economic considerations, where environmental protection and conservation are viewed solely from an economic perspective (ibid).

2019- PRESENT2019- PRESENT

Recent deregulation and power consolidation by the agricultural lobby have fostered additional rollbacks in enforcement and social conflict that have further exacerbated the lock-ins. Deforestation and degradation in the Amazon increased under the Bolsonaro and Temer administrations resulting in human rights violations and increased violence (Burga, 2018; Gebra & Agrawal, 2017).

CMBF-NTFP and CCPs in the Amazon

Since the early years of exploration in the Amazon there has been a stron interest in NTFP (Pokorny & Pacheco, 2014). Since the 1990s, environmental organisations have systematically highlighted the inclusion of impoverished rural forest communities in value chains and markets

as a crucial prerequisite for the successful environmental protection of Amazonian forests (Belcher & Ruiz, 2005).

NTFP may be broadly defined as all biological materials other than timber, which are extracted from forests for human use. It comprises forest products not only derived from trees but from all plants, fungi and animals (including fish) for which the forest ecosystem provides habitat (De Beer & McDermott, 1989). It includes Accordingly, throughout this paper, the term encompasses any product harvested or wild collected from the forest other than timber (CIFOR 2008).

The NTFPs in the Amazon forest are usually not domesticated species, collected directly from the forest by traditional communities (Indigenous, Riverside, Maroons) and the harvesting of these products demands a huge effort from the population, being made in a rudimentary/low technology mean and commercialized to different levels of middlemen (Straatmann et al 2011).

There are many terms for the various groups of NTFP extractors in the Amazon, such as *seringueiros* (rubber tappers), *castanheiros* (Brazil nut gatherers), and *ribeirinhos*, or caboclos, (riverside dwellers) as well as the Indian groups (Plowden, 2001). These are not mutually exclusive categories. For example, most rubber tappers also collect Brazil nuts and other extractive products, and engage in a wide range of livelihood activities (Richards, 1993).

Some writers hold the view that it is well-established that NTFPs fulfils multiple functions in supporting human well-being (Mayers & Vermeulen, 2002) Similarly, Lopes et al. (2018) notes that non-timber forest products have been an essential component of traditional livelihoods and still contribute to the economic, social and cultural livelihoods of 6 million households in the Brazilian Amazon.

Among the forest-based activities that aims to reconcile conservation and local people's well being, the exploitation of non-timber forest products (NTFPs) stands out, because it allegedly produces fewer negative ecological impacts than other types of land use, while generating monetary income for forest-dwellers at the same time (Bauch et al. 2014, Waylen et al. 2009, Rizek & Morsello 2012, Antunes et al 2021).

Over the past few years Brazilian state and federal governments have advanced ambitious policies to foster Amazonian sustainable development based on the CBMF-NTFP and CCP strategies. During the past two decades, the Brazilian government has implemented policies addressing concerns of smallholder farmers, indigenous people and traditional communities living in close relation with biodiversity. For instance, the Federal Program for Community and Family Forest Management Program (PMCF) was established aiming at promoting the sustainable forest management by countryside families, agrarian reform settlers and traditional peoples and communities; the National Plan for the Promotion of Socio-biodiversity Product Chains and the Minimum Price Guarantee Policy (PGPM) which establishes the granting of economic subsidy and minimum prices for some non-timber forest products; , are among the public policies aiming to foster; in 2015, the National Plan for the Strengthening of Extractive and Riverside Communities (PLANAFE) was instituted. Additionally, a series of credit lines aimed at family farming have been implemented, with the objective of promoting economic activities based on the sustainable exploitation of the forest.

Company-communtiy partnerships in perspective

The fashion for partnerships with the private sector brings both optimism and scepticism. Proponents see them as mechanisms for multi-stakeholder cooperation and broad-based development. Critics rejoin that the types of partnerships most keenly promoted by companies and governments are a necessary outcome of neoliberal orthodoxy aimed at increasing the share of control over production held by corporations. Concerns are widespread that voluntary initiatives such as partnerships are attempting to replace rather than complement regulation and that partnerships are being promoted as an alternative to the global intergovernmental agreements that are needed to tackle global problems such as poverty and climate change (Mayers et al., 2001). Critics also note the tendency to promote partnerships with others as a way of shedding responsibility, for example through sub-contracting (White, 2001).

The context of company-community deals in the Brazilian Amazon

The communities involved in these partnerships are generally small, remote and autarkic or semiautarkic, that is, they have little or no links with the market economy, and they predominantly live in Indigenous Territories (Zanotti 2011) or inhabited protected areas such as for Extractive Reserves, Sustainable Development Reserves or National Forests (Weber et al, 2011). Normally, they have about 100-300 people organized into extended families

averaging 5 to 10 people and base their economies on a mix of small scale agriculture, fishing, hunting and gathering forest products, mainly for their subsistence, but occasionally for trade (Morsello, 2009).

For instance, in his analysis of AmazonCoop-Body Shop partnership with the Kayapó indigenous community, Burke (2010) concluded that the agreement reinforced and consolidated outsiders' power over indigenous villages. According to him, indigenous members had little understanding of how the cooperative worked and how they might participate in it, as the cooperative economic projects actually reduced the autonomy and self-sufficiency of villagers. Similarly, in a study to investigate the community-company deal between Brazil nut gathers in São Francisco do Iratapuru and the Natura Corporation, Tourneau & Greissing (2010) found that while the community has succeeded in working out a modern model of extractivism by adding value to a resource collected inside the rainforest, which is a 'rare success,' improvement in their standard of living still lags behind the economic success, and the cooperative remained weak against new turbulences or a collapse of the alliance with Natura.

Some analysts (e.g., Pokorny & Pacheco, 2014, Morsello 2006) have pointed out that while the commercialization of goods and services from natural forests has indeed the potential to generate income, their financial attractiveness is rather limited if compared with other land use options and as a result this can seriously affect the probability that forest-related uses at a wider scale will be successful . This view is supported by Antunes et al (2021) who writes that NTFP-derived incomes are not sufficient to compete against other economically profitable activities (e.g., logging, agriculture, livestock), and current evidence has shown that peasant farmers and traditional extractivists, including the rubber tappers in Chico Mendes reserve, are shifting to pasture-based farming systems.

Although it has been argued that incomes derived from derived from CCPs in the Amazon are unable to lift communities out of poverty (Waylen et al, 2010; Bauch et al 2014), Morsello (2006) maintains that the partnerships are considerably beneficial in conditions of income scarcity such as the Brazilian Amazon. As she points out, prior to the agreement BSA'Ukre-Kayapó for the production of Brazil nut oil, most families had income equal to zero. Another study that examines the impact of NFTP extraction and CCP membership on smallholders' income in four municipalities in northeast Pará state found that CCP cooperatives improved

the annual incomes of members by training them and by providing support for the processing and marketing of forest products, and for diversifying production through more sustainable agricultural practices (Antunes et al 2021).

CHAPTER 6 FINDINGS

The extraction of non-timber forest products is widely practiced in the extractive reserves and constitutes an important source of cash income and subsistence for many families. Fourteen NTFPs are exploited in the study area: açaí, andiroba, murumuru, cipó, buriti, patauá, straw, virola, seringa, ouricuri, honey, bacaba, copaíba, and ucuúba (ICMBIO, 2011). From the group above, nine products are commercially-exploited and used for consumption. The most commercially-relevant NTFP products are açaí, andiroba, murmuru and rubber.

The oil rubber and açaí value chain have distinct models of production regarding their seasonality, harvesting availability, extractive output, earning potential and level of allocated effort needed to undertake the activity. The common characteristic of the three productive chains is the complex web of activities in which the production takes place. The most steady and well-established of these is the oilseed value chain, which begun in 2000 and sells oil wholesale of andiroba, murumuru and ucuúba butter to the large cosmetic company Natura.

Characteristics of NTFP production and commercialization

Partner Company (sector)	NATURA (cosmetics)	VEJA (footwear)
NTFP Processing	✔	X
% of Households Involved	81%	48%
Main Product Commercialized	Andiroba (Carapa Guianensis, Aubl.); murumuru (Astrocaryum murumuru, Mart.); ucúuba (virola surinamensis)	Rubber (Hevea Brasiliensis)
Partnership Since	2000	2020
Partnering Local Organization	CODAEMJ, AMARU	ASPROC
End use	Cosmetics	Footwear

Figure 9: Characteristics of NTFP Production and Commercialization.
Source: CODAEMJ and AMARU, ICMBio and SDS

The commercial dependency on forest extractivism was not uniform across the reserve communities. Some of the NTFP resources are widely present in flooded forests and absent from terra firme forests; therefore, communities with greater access to the former type of forests

are more involved in the commercial trade of NTFPs (ASPROC, Newton et al. 2011). The following sections will provide a description of the current state of each of these productive chains.

6.1 The Vegetable Oil Production Chain

The Médio Juruá vegetable oil biodiversity chain takes place through a deal between Natura and two local-based for for the production of Andiroba oil, Murumuru and Ucuúba butter. CODAEMJ and AMARU are responsible for jointly fetching the seeds from the communities, and respectively transporting them to the factory in Roque and Bauana, where the oils are produced in a semi-industrial way and then shipped to Natura's industrial facility in Benevides, Pará. The process is detailed below.

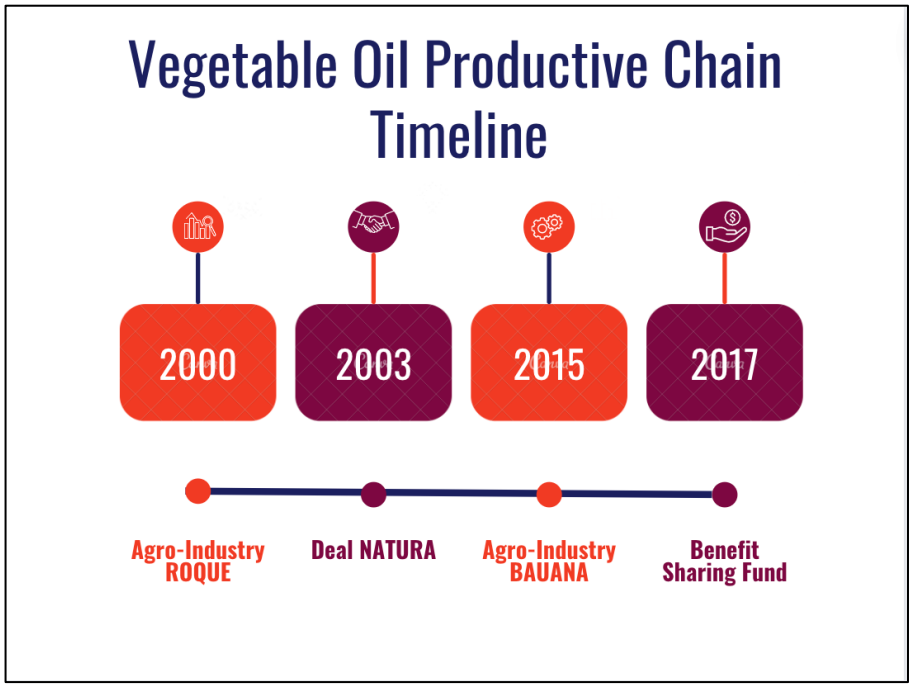


Figure 10: Vegetable Value Chain Timeline

6.1.1 Roque's Processing Plant

The collection of the Andiroba seeds and its artisanal production of oil has been a traditional practice of the riverine communities in the Médio Juruá region for decades. Local people have been traditional using Andiroba oil for medicinal purposes and insect repellant. The semi-industrial production of vegetable oils in the study area was only established in 1998 through

the project “Vegetable Oils for Electric Energy Generation and Valorization of Biodiversity in Isolated Communities of the Médio Juruá Extractive Reserve” an initiative of the Federal University of Amazonas (UFAM), sponsored by the Ministry of Science and Technology (MCT). The project's overall objective was to provide rural electrification through the production of biofuel (andiroba oil) to the RESEX communities and to find alternatives to improve small rural producers' household incomes (Andrade, 2010). A multi-disciplinary team from UFAM, led by Professor Castro, implemented the project, which took two years to be concluded due to a variety of constraints, such as difficult logistics, low educational level of residents to operate the machinery, among other issues (Schweickardt, 2010).

Roque was chosen as the recipient of the project because of its vegetation and land use which were crucial to maintaining the sustainability of the project; additionally, it was the most developed community in the region, with a larger number of residents (45 houses and 232 people); the community members possessed a strong sense of social participation (Andrade, 2010).

The difficulties in transporting the equipment to the community in Roque were enormous. The Amazon Military Command transported the equipment to the Roque community as well the entire community was mobilized (figure 11). The conclusion of the activities was the result of various strategic partnerships between the project and several institutions (figure 12).

Figure 11: Transport of the Equipment to the Vegetable Oil Factory.
Source: Correia, 2001 (vegetable oils project photo collection).

It was verified, however, that the factory would not generate energy as planned once it became operational. In order to generate energy throughout the year, a large stock of andiroba would be needed and the factory's capacity would not be sufficient. Additionally, at that time, a liter of diesel cost R$0.90, while a liter of andiroba oil cost ten times as much at R$10,00; thus, it would make more economic sense to sell the oil and buy diesel (Schweickadart, 2010).

Originally, the project was designed to generate electricity with vegetable oil. However, as vegetable oils gained popularity, there was increasing interest from the cosmetic and pharmaceutical industries, and the oil was commercialized Diesel continued to be used to generate electricity (Andrade, 2010).

It was at this time that the cosmetic company Natura launched Ekos, a new and eco-friendly line of products based on raw materials obtained from Amazon and UFAM, and arranged a deal with Natura to have the oil commercialized. In the beginning, the company Cognis served as an intermediary, buying the entire production and refining it for resale to Natura.

Figure 12: Community of Roque agro-industry for oilseed processing.
Source: Schweickardt, 2010**.**

In the beginning, ASPROC was responsible for marketing andiroba oils with the company Cognis, but from 2003 onward, residents of Roque created their own marketing organization. The Agroextractivist and Energy Development Cooperative of Médio Juruá (CODAEMJ) was then founded in 2003 with support from UFAM.

6.1.2 Bauana's Processing Plant

In 2016, another oil factory was built in the Médio Juruá region within the Bauana community. The construction was financed by Amazon Sustainable Foundation (FAS) and other parners. Since then, the Bauana community has also begun trading Andiroba Oil and Murumuru butter with Natura.

Figure 13: Arial image of the Forest Products Processing Unit at Bauana community, with the Juruá River in the background.

Credits: Gustavo Basso

6.1.3 The Production Process

The production process includes three phases: the inbounding logistics, which aims at acquiring raw materials and directing them to agro-industry; the manufacturing process, also called as beneficiation stage, whereby the vegetable oil and butter is manufactured in both agro-

industries in Roque and Bauana; and finally, the outbound logistics, comprising of the transport of the final product to the seller. This production process entails very expensive, complex logistics detailed below.

Stage I – The Seeds Collection

The process of oilseed collection involves all family members, from children to the elderly (figure 16); however, the bulk of the process is mostly carried out by women. Seed gathering for commercial purposes was the first income-generating activity for many rural female residents in the region.

Figure 14: Nut Gathering in Médio Juruá.
(credits: Bruno Kelly)

Knowledge of the extraction processes is reported to be passed orally and through direct observation, though it has been noted that the involvement of young people may be declining, potentially endangering the survival of the practice (Nardi et al. 2016). Currently, the extractivism of Andiroba (*Carapa Guianensis Aubut Melicae, figure 14*), Murumuru (*Astrocaryum murumuru,*) and Ucuúba are for commercial purposes is practiced in 63 communities of Médio Juruá river, distributed in both extractive reserves and adjacent communities (table: 3). The oleaginous are abundant in the Brazilian Amazon, and are commonly found in seasonally flooded areas (*várzea*). In the study area, these species can be mainly found in the islands and lowland border of Juruá River estuary and its streams, in dense

or semi-open forests. The harvest period of Andiroba and Ucuúba seeds takes place from January to May, while that of Murumuru starts in June and goes until mid-August (Vidal, 2019; Araujo, 2010).

Figure 15: Andiroba Tree and Nuts
Source: Paredio, 2003

The *Astrocaryum murumuru (figure 15)* is a palm native tree to Amazon rainforest vegetation, which bears edible fruit. It contains a yellow pulp (53%) that is commonly consumed by rodents, leaving a clean core (Lima et al. 2017). The core contains a woody bark, and, in its dry state, it is possible to separate the bark of the nut, which contains 40–42% of white fat (Pesce, 2009). The murumuru butter is extracted from the seeds and contains a high content of oleic acid and moisturizing characteristics.

Figure 16: Murumuru Fruit and Nuts.
A)Murumuru Fruit B) Murumuru Nuts C) Ucuúba

In the past, CODAEMJ purchased murumuru from collectors either as fruit or as nuts. Removing the murumuru nut from the shell entails the laborious and time-consuming work of cracking the hard nut shells, which requires the use of both tools and force. Aiming to earn higher payments, collectors carry out the nut removal manually, using tools like hammers. In Roque's agro-industry, a machine* can be used to perform murumuru shelling in a semi-industrial way. This process, called 'catação de murumuru,' is very low remunerated and is mainly performed by women and youth. Now, almost all murumuru raw material is acquired in nut form to prevent waste caused by rotten fruit in the production process. Since the Bauana factory does not have the means to shell murumuru fruit, the unit does only purchase it in the already shelled form.

Currently, the seeds are collected in 63 communities (table 3) within the region, and distributed through the RDS Uacari, the ResEx Médio Juruá, and other adjacent communities surrounding the protected areas (PAs). There has been an expansion in the area of collection, so there are

sufficient raw materials to comply with the buyer's contract. The collector must be associated in CODAEMJ or AMARU to be able to engage in the extractive activity. Currently, CODAEM has 470 associates.

The seed availability will vary across communities, depending on forest type. Locations with terra firme (unflooded) forest type will likely possess more seeds than the várzea (seasoned flooded) cover ones. As a result, some families have to travel to distant *andirobal* areas (collection areas) in order to find suitable places for seed collection. Some gathers undertake an expedition into the forest with their families to the collection area and camp there, which can take up to one week. The journey is long and requires supplies for a week-long stay in the forest. Although the seed gathering does not require hard physical labor, the activity is physically demanding due to the heavyweight (12 kg) of the stored seed harvest. Therefore, not only the community landscape structure (*várzea* or *terra firme*), but also household composition will have a strong influence on the number of seeds collected by the participating families

A collector from Roque's community, described the process:

> "We are a family of 10 people. So, some of us stay at home taking care of the children, while 5 of us travel to the Andirobal. First, we take our family boat, to get into the area, and then we have to walk two hours in the forest to get to the collection area. Since it is quite distant, we camp there and spend one-week collecting seeds and come home at the end of this period. This way we manage to collect a lot of seeds." (Collector, resident in Roque Community).

Table 3: Communities Engaged in the Oilseed Collection.

	COMMUNITIES		COMMUNITIES		COMMUNITIES
RD	Xeruã	**RESEX**	Estirão do São José	**SURROUNDI**	Bacaba
	Bom Fim		Gumo do Facão		São João
	Xibauazinho		Nova Esperaça		Ressaca
	Vila Medeiros		Maria Monteiro		Lago Serrado
	Xibauá		Imperatriz		Reforma
	Cachoeira		Tabuleiro		Vila Nova
	Monte Carmelo		Liberdade		Lago do Futuro
	São Francisco		Morada Nova		Praia Nova
	Boa Vista		Boa Vista do Tó		Vila das Flores
	Caroçal		Manarian		Sitio São Francisco
	Praia do Campinas		São Raimundo		Estirão do Carapanã
	Samaumeira		Mari-Mari		Goiabal

	Morro Alto		Nova União		Providência
	Porto said		Santo Antonio da Resex		Socorro Alegre
	Lago do Pupunha		**Total: 14**		São Sebastião
	Ouro Preto				T.I Deni
	Santo Antonio do Brito				Sacado do Juburi
	Vila Ramalho				Estirão do São Sebastião
	Canta Galo				Céus Aberto
	Barreira do Ido				Sacado do Preguiça
	Idó				Vila do Açai
	Bauana				Santa Cruz
	Bom Jesus				Santa Cruz
	Igarapé Preto				Concordia
	Total: 24				Pedreiro
					Total: 25
			Total Communities : 63 **Total Families : 345**		

Source: CODAEMJ and AMARU

In line with previous studies, all respondents who undertake seed collection (n= 7) noted that seed gathering is not the main income activity of the household. All of them indicated the earnings obtained in the swidden fields (*roças*) and the *farinha* (manioc flour) production as the main income-generating activity. The interviews also revealed that during the harvest period, the families need to alternate the nut gathering with the agricultural activities, as it intersects with the seeds harvesting period. The majority of the communities (~80%) are engaged in the seeds colletion (figure 17).

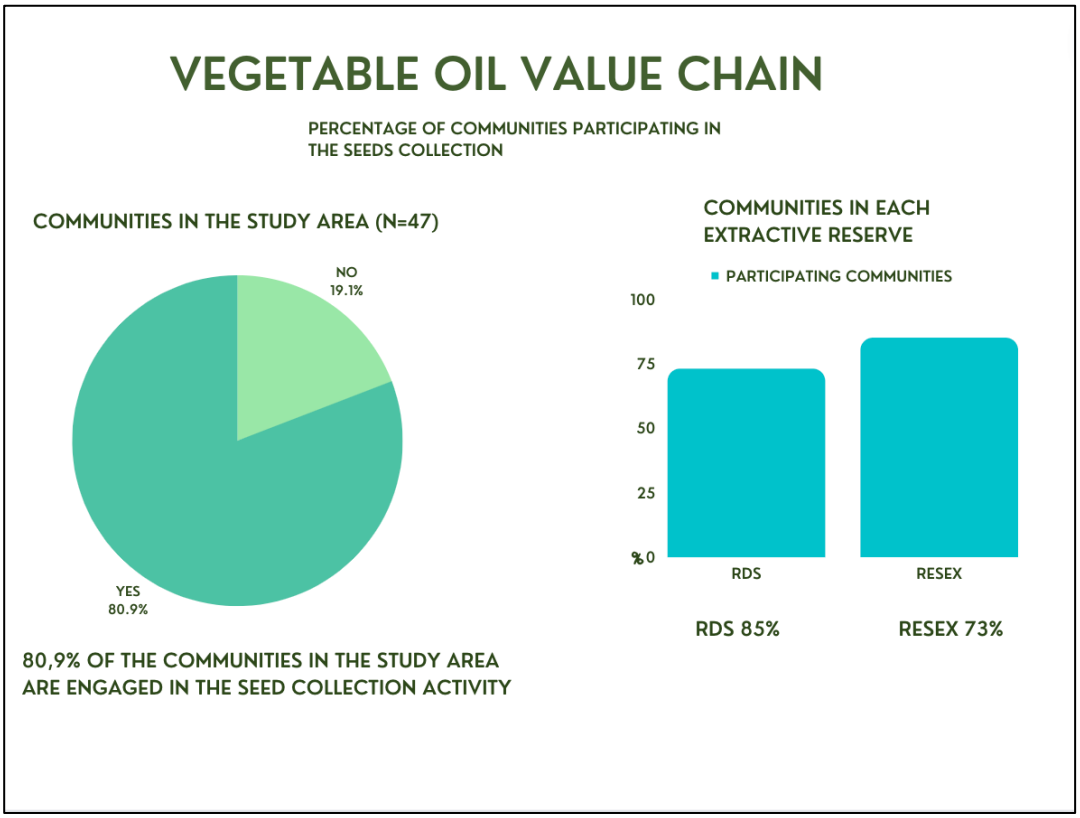


Figure 17: Proportion of Communities Engaged in the Oil Trade

Usually, the payment for the seeds by the Cooperatives is not made upfront, and it is not unusual for late payments to occur, as it was the case this year. One collector said that sometimes when they finally get the payment, it is not sufficient to cover the expenses of the activity. The income originating from the seeds collection is usually used to buy food and household appliances such as stoves or laundry machines. Collectors receive US$ 3,04 (R$16), $ 4,57 (R$24), and $11,43 (R$60) for andiroba, ucúuba, and murumuru storage-packed bags, respectively. Andiroba and Ucuúba bags contain 7 kg and murumuru 12 kg. The price paid for the cooperative in 2022 to collectors is described in table 3.

Table 4: Price paid for the raw materials in 2022

Oleaginous Specie	Raw Material	Volume (bag/kg)	Amount Paid to collectors by CODAEMJ /AMARU per bag (U$)
Andiroba	Seed	7kg	3,04
Murumuru	Fruit	---	---
	Nut	12kg	11,43
Ucuúba	Seeed	7kg	4,57

Collectors' Earnings

While some participating families presented considerably high earnings with the sale of seeds, this was not the general rule for most families. The collecting family with the highest revenue figure of Andiroba earned US$ 1,750.11(R$ 9,182.47) in 2022, while another has made $ 1,134.79 (R$ 5,954,01) in 2020 and a third with $1,106.2 (R$ 5,106.2) in 2019. The majority of the participant households (percentiles 25%, 50%, and 75%) have earned US$ 22.86 (R$120), $48.78 (R$256) and $91.46 (R$ 480).

The same inequality was observed for Murumu's nuts collection revenue, whereby a family earned US$1,120.44 (R$ 5,878.72) in 2020, another one $447.79 (R$ 1,775.51) in 2021, and a third one $338.4 1in 2020. However, the majority of revenues - percentiles 25%, 50%, and 75% - of all murumuru collectors were up to US$27.43 (R$ 140), $45.73 (R$ 240) and $91.46 (R$ 480).

Although it is very difficult to determine the real profit that Medio Juruá community draws from its oil production (based on the multitude of other economic activities carried out by collectors and which individuals are involved in other phases of the production process), the collected data show that show an increase in the total income of the participant families.

Table 5: Seed collecting billing and productivity.

					Percentiles		
	Seed	Number of purchases	Mean	Sum	25th	50th	75th
Earnings (US$)	Andiroba	1323	394.83	522356	22.86	48.78	91.46
	Murumuru	390	366.58	142968	27.43	45.73	91.46
Productivity (Kg)	Andiroba	1323	200.74	265580	70	136.5	231
	Murumuru	390	92.59	36110	36	60	120
Productivity (buckets)	Andiroba	1323	24.45	32346	8	17	29.5
	Murumuru	390	7.72	3009	3	5	10

Stage II – The Purchase Trip

Purchase trips are jointly made by AMARU and CODAEMJ, lasting from 5 to 10 days (depending on the tide level period). In the past, the cooperatives made 6 to 8 times trips per year to collect the raw material. Now, the number of voyages dropped to 3 to 5, but distances are greater, as communities outside of the Extractive Reserves even in other municipalities also are included. Each trip takes 5 to 10 days and has considerable expenses, primarily with fuel

(gasoline, diesel, oil 40, gas) but also with food, cleaning material, river logistics service, crew members, etc (source: CODAEMJ, 2022).

Besides jobs at the processing units, the purchase trips' work is one of the best-remunerated activities. A work day pays US$ 9.39 (R$ 50) and it is generally performed by men (usually the only woman in the boat crew is the cook hired to fix the meals). The original proposal is that it should be organized on a rotating basis, promoting a better distribution of income. In the past, it was not taking place as indicated by the project coordinators (Risek, 2010) and according to the interviews this rotation is still not happening. In the dry season (low river level) the boat cannot reach the communities through the igarapés and varadores[6] and the seed bags transportation must be done manually (figure 18).

Figure 18: Transport of the Seeds

[6] path between two rivers.

Stage III – Oil Manufacturing at the Agro-industry

After the purchasing trip, the raw material is delivered to the Roque and Bauana community in order to be processed in the agro-industry. This phase also entails complex logistics, especially in the low-water season (most of the production is undertaken during this time) as it was mentioned previously. From the boat on the bank of the river to the factory inside the community, the sacks/buckets need to be carried throughout open paths. In order to transport the seeds to the factory, the seeds arrive at Roque's 'port' in 18-kg-bag separated by batches. Each batch contains the information of the collectors, date of collection, and quantity of seeds (in kg), among other information. Cooperatives organize the traceability of crops in Excel spreadsheets. Therefore, it is possible to control the amount that will be produced by raw material, the loss by spoiled seeds and processing dates .

High spending costs and complexity are also present in the production process. In addition to expenses with storage bags and labels for identification that the Cooperatives provide for collectors, there is the cost of extra manpower required to unload the boat and take the raw material to the agro-industries. The access from the main river to the proccessing units inside the communities is very complex during low tide. The same happens in the outbounding logistics, when the processed oil is shipped to the Natura headquarters in Benevides, Para.

According to the CODAEMJ representative, the transport from the boat is carried out by 'extra' work, and the 10 BRL for 4 buckets. It takes 20 minutes to get to the *'varadr'* and then another additional 30 minutes to get to the factory. From the varador to the factory they use *bois de carroça* (cattle). Currently, there is a herd of 60 cattle in the Roque community.

There are seven staff working in the factory during the production period, with salaries ranging from 244 to 281 USD (1300 to 1500 BRL). The factory employees only receive salary during the production period, only the Cooperative President and the accountant are paid the whole year, due to their continuous activities.

The oil and butter manufacturing encompasses three stages: drying, heating, crushing, and mechanic pressing of the oilseed [7].

[7] See Vidal (2019) to have a detailed explanation of the manufacturing process at the Roque agro-industry

Due to the seeds' seasonality, the production output varies widely. The annual contract stipulates the amount to be delivered, but, as demonstrated in Table 6 the agro-industries are not able to comply with the agreed amount.

Table 6: Roque Proessing Unit Demand x Output Production

Year	**Demand**			**Output**					
	Andiroba	Murumuru	Ucuúba	**Andiroba**	%	**Murumuru**	%	**Ucuúba**	%
2018	30t	15t	15t	**5620 kg**	19%	**1208 kg**	8%	**1435 kg**	9%
2019	20t	13t		**9234 kg**	46%	**5123 kg**	39%	—	—
2020	20t	20t		**21924 kg**	101%	**9100 kg**	45%	—	—
2021	10 t	10 t		**216 kg**	2%	**1431 kg**	14%	**792 kg**	n.a
2022	10t	10t	10t	**16128 kg**	161%	**594 kg**	5%	**1152 kg**	12%

Table 7:Production Output BAUANA Factory

YEAR	**Description**	
	Murumuru Butter (kg)	Andiroba Oil (kg)
2018	1400	0
2019	640	3000
2020	2.088	11.970
2021	1.422	0

Figure 19: Oil Being Filtered at Roque's Processing Unit

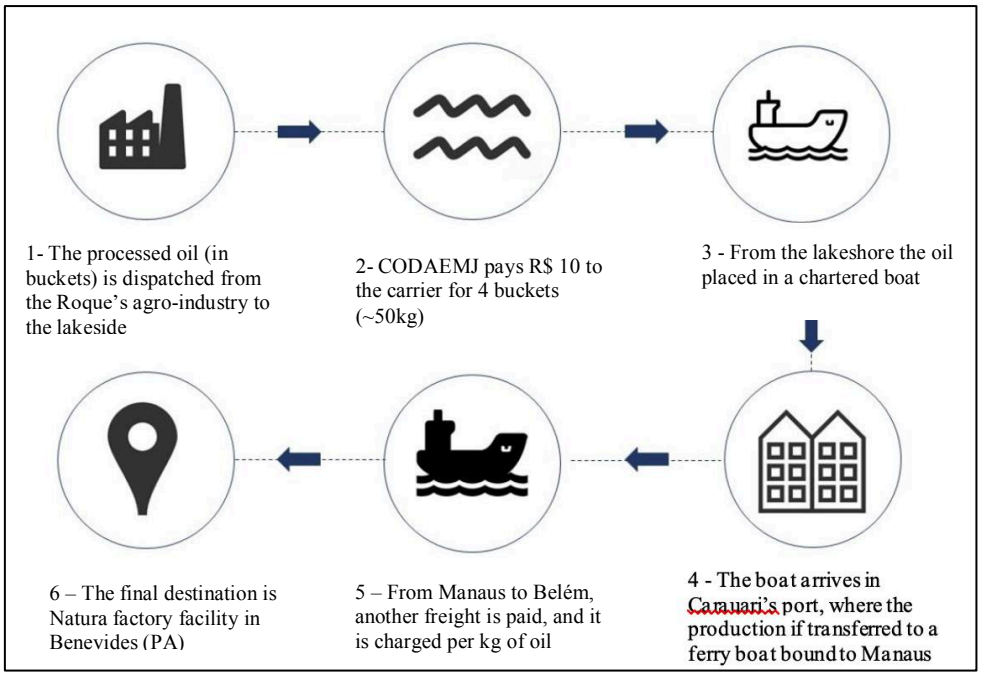


Figure 20: Outbond Logistics of the Processed Oil to Natura.

(adapted from Vidal, 2019)

Natura has established an agreement with ASPROC to provide qualified human resources to assist both processing units in the vegetable oil production. This was necessary due to the low techinal capacity of the residents to operate the machinery in the factories and the lack of financial and administrative expertise. The situation has improved considerably since Roque's factory conception in the year 2000. The new staff is comprised of younger residents who possess better education and are more familiarity with the technology. The UFAM, through Professor Castro, the project creator, had been assisting in operational matters throughout. From 2016 onwards, Natura started to provide human resources to expertise to support the agro-industries.

6.2 Natura's Agreement

Natura cosmetics is one of the brands of the Natura & Co group, which also includes the brands Aesop, The Body Shop and Avon Products. Natura & Co is a Brazilian global cosmetic group headquartered in São Paulo and is the fourth biggest cosmetic company in the world, present in 73 countries across all continents except Antarctica (Wikipedia). Natura Cosméticos, the parent company, was founded in 1969 by Antonio Luiz Seabra and became a public company in 2004. In 2021, the Natura & Co group had a consolidated revenue of US$ 7.62 billion (Natura Report, 2021).

Figure 21: Natura Ekos Andiroba products.

(Source: Web)

In 2000, Natura created the Natura Ekos, an innovative line of products incorporating natural ingredients from the Brazilian forests developed a new strategy in order to increase its market participation. Aiming to strengthen its image as a company concerned with the sustainable development models that would imply active protection of the Amazon, the Natura Ekos (figure 21) is based on the use of the forest resources collected by small producers in a certified production process in order to guarantee sustainable exploitation of the forest resources (Le-Tourneau & Greissing, 2010).

In 2000, Natura created the Natura EKOS, an innovative line of products incorporating natural ingredients from the Brazilian forests developed a new strategy in order to increase its market participation. Aiming to strengthen its image as a company concerned with the sustainable development models that would imply active protection of the Amazon, the company line is based on the use of the forest resources collected by small producers in a certified production process in order to guarantee sustainable exploitation of the forest resources (Le-Tourneau & Greissing, 2010).

As previously stated, the current deal with Natura with the traditional communities in Médio Juruá is settled for the production of Andiroba oil, Murumuru and Ucuúba butter. Although there is no exclusivity clause in the contract, the cooperatives' production is bought in its entirety by Natura, their only commercial partner. The price paid by Natura for the processed output is described in the table 8. According to CODAEMJ, there was not agreement for the Ucuuba production from 2018 to 2021.

Table 8: Price Paid by Natura to CODAEMJ and AMARU for the Manufactured vegetable oil

	2018	2019	2020	2021	2022
Andiroba Oil		24,29	25,08	26,33	29,23
Murumuru Butter	35,17	36,33	38,15	40,06	50,22
Ucuúba Butter	-	-	-	-	28,40

The agreement is updated annually, where the expected production volume is agreed and the price paid for the production is set. It is Natura that dictates the volume of production, which in turn is decided based on company's storage levels. Although there is room for negotiation,

the price is mainly dictated by Natura. The negotiation takes place annually by the end of the year, whereby the presidents of both selling organizations sit at the negotiation table with Natura. This year, the cooperative have to call three extraordinary meetings, as the price set in the contract has proven to be unprofitable. According to the interviewees involved in the process, although Natura possesses higher position in power dynamics, the organizations also have bargaining power and have managed to negotiate a reasonable price for the products. And although the annually signed contract between Natura S/A and CODAEMJ has never been broken since its conception in the early 2000s, there is no certainty that a new agreement will be signed in the following year.

There are few features in the contractual relationship between Natura and the Medio Juruá cooperatives that differ from standard commercial agreements. For instance, even without having any certainty that the cooperatives will be able to honor the agreement - due to high seasonability of the species, or natural hazard events – Natura pays 30% of the contracted in advanced of commencement of work and the balance is due when the production is delivered. This happens, due to the lack of working capital of the cooperatives, which need cash to afford the production costs (purchse of raw material and the logistics involved; manufacturing and shipment to the buyer). This advancement is not enough to pay for the whole costs, which in turn creates another issue. Most of the payments – mainly agro-industry and boat staff and collectors – are only paid at the end of the year (usually November) when the whole yield is delivered. As such, factory employees may work several months without being paid (being paid only after a long period). Natura pays 30% of the agreed contract in advance, so the organizations can run the production. Once the agreed production is delivered by the end of the year (usually by November), the cooperatives receive the remaining 70%.

On the other hand. when the harvesting is low, as it happened in 2018 season, and it was not possible to commit with the agreed volume of production, the advanced payment does not need to be returned, and it can be used for the next year. Cooperative representants have signaled doesn't agree with the advancement of the payment, although they acknowledge that it would be impossible carry out the enterprise without it. If the cooperatives fail to deliver according to the terms of the agreement, there is no punishment.

While the vegetable oil chain is economically viable the highly costly logistics hampers the profit margins. As a result, both agro-industry units do not have a surplus to able to build up a

working capital. consume most of the gross revenue. There are a variety of reasons why getting working capital with the current business model it is almost impossible to achieve. Firstly the expenses with the purchase of the seed are high, mainly due to the logistics costs of the operation.

6.3 Natura`s Fund (The Benefit Sharing Fund)

The Médio Juruá Benefit Sharing Fund (FRBMJ) was created in 2010 and formalized in 2017, in accordance with the Brazilian Law of Biodiversity (13.123/2005). It is ameid at managing payments for the communities of the Médio Juruá, by apportioning benefits of Natura company for accessing its genetic heritage and traditional knowledge of sociobiodiversity extractive chains. In The is a form of the collective benefit accrued from the partnership with Natura.

Natura company deposits a percentage of its sales in this fund, due to its access to genetic resources and traditional knowledge of the riverine people, in collecting the oilseeds (murumuru and andiroba). The Benefit Sharing Fund has sponsored social and environmental projects in the region.

Natura allocates 0.75% (zero point seventy-five percent) of the net revenue for sales accrued of products derived from andiroba and murumuru species. The Benefit Fund's is managed by a committee chaired by four organizations, three of which community-base: ASPROC, AMARU and CODAEMJ, and ICMBio, which has the role of the Fund's Executive Secretary.

The FRBMJ sponsor socio-environmental, community, organizational, productive projects and activities aimed at the sustainable development of the RDS Uacari, RESEX do Médio Juruá, Deni Indigenous Territory and in surrounding areas. These initiatives must benefit local communities, through projects approved by the managing committee and are implemented by the proposing organizations. In this collective arrangement, all community organizations access FRBMJ resources.

Through the projects selected, the fund has supported a number of activities related to conservation and sustainable use and has contributed to the improvement of the livelihood of the communities involved, including:

- Conservation of forest areas, as well as endangered turtles and the pirarucu fish.
- Capacity-building through environmental education activities (e.g. species conservation programmes targeting the youth) and management trainings
- Improvements to local infrastructure (e.g. establishment of three community shops for easier access to items such as food, fishing material and fuel at a more affordable price).
- Empowerment of local people (e.g. participation of community representatives in general assemblies and participation in decision-making)
- Enhancement of the supply chains (e.g. increased production yield, improvement in quality of Andiroba oil)

Table 9: Médio Juruá Benefit Sharing Fund Endowments. Source: Benefit Sharing Secretariat, 2022**.**

FMJ CALLS FOR PROPOSAL	
Year	**Endowement**
2017	**US$ 150,520.10**
2018	**US$ 188,635.27**
2020	**US$ 188,571.72**
2021	**US$ 131,475.34**
Total funds accessed	**US$ 659,202.43**

In some interviews, it was possible to notice that there is a sort of disagreement among the local organizations, regaring the allocation of the funds. According to the current rules, small-size organizations receive US$ 7,621.70 (40.000 BRL) while large organizations receive US$ 47,635.65 (250,000,00). One of the discontentment that arose is the parameter to define an organization as small or large, i.e., number of associated members, deemed to be unfair by the informant. Based on this rule, onlythree local organizations receive the higher grants. The interviewee pointed out that the amount received by the smaller local cooperatives is not sufficient to implement the projects, barely covering fuel expenses. Table 9 shows the Benefit Share grants since it's the fund was formally established in 2017.

6.2 The Rubber Production Chain

As for most part of the non-tribal Amazonians, the riverine population in Médio Jurua was originally drawn to the region by the rubber boom cycles. As such, the extractive activity of rubber is not only an economic relevant, but also carries a great sense of identity.

Since then, several government-led initiatives and policies have been implemented aiming to enhance rubber extractivism in the study area. The rubber extraction was practically abandoned in the area. After a brief resurgence with the liquid leaf project (LDF[8]), rubber extraction in Medio Juruá was unsuccessful and activity declined again. In 2006/2007, ASPROC found a market for rubber production and activities resumed. The communities have been stimulated to engage in rubber exploitation activities and resume rubber tapper activities in the region has resumed (figure X). by financial support initiatives given by donors such Petrobras and the Ministry of the Environment. Figure 1 shows an increase in rubber production in the region from 2008 to 2021.

Table X: Rubber Production Médio Juruá 2008-2021

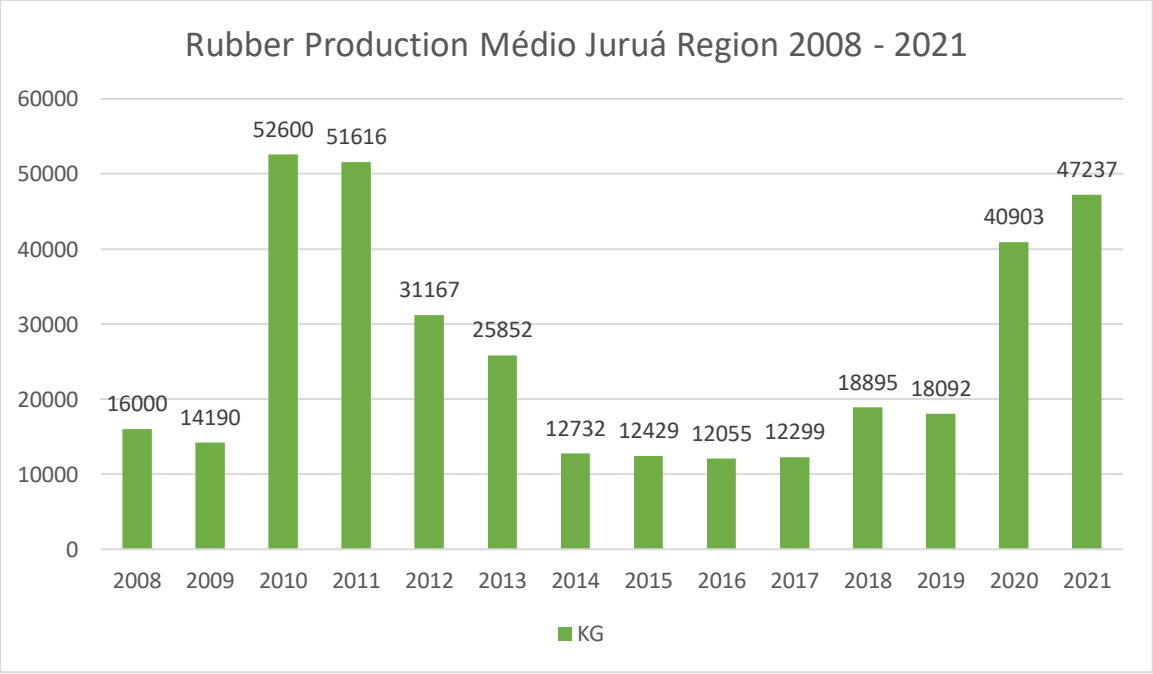
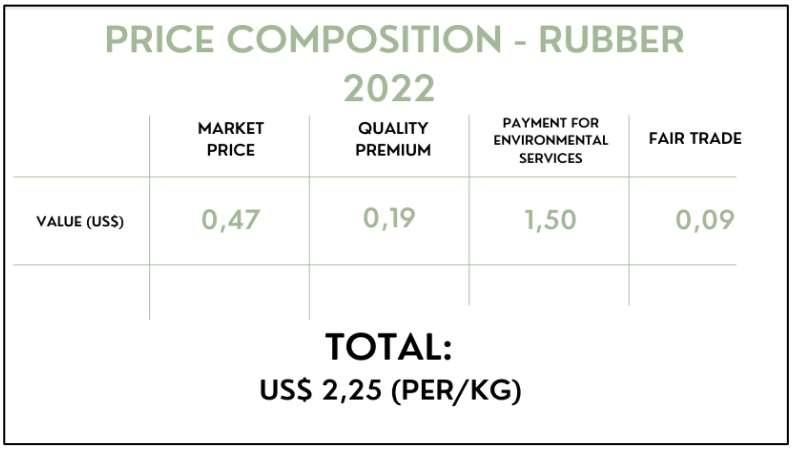


Figure 22: Rubber Production Médio Juruá 2008-2021

[8] Federal Government incentive… blab la bla;

Today, the extraction of rubber is the highest-earning among all NTFP activities in Médio Juruá, followed by the Pirarucu Productive chain. Since 2020, the French shoe-company Veja, buy the entire production of the region, having a cooperative in Acre as intermediate. In addition to the current market value, the company also pays for environmental services, pushing up the price paid by four times the current market value. In 2022, the rubber price per kilo is R$ 13,08 (US$ 3,38; 1 US$ = R$ 5,34 in 28/10/2022).

Table 10: Price compostion paid by Veja. Source: ASPROC, Veja.



The price is further increased by two public subsidies. The Minimum Price Guarantee Policy – PGPM *(*in Portuguese, *Política de Garantia do Preço Mínimo*) is a federal incentive program that sets a minimum price for a number of extractive and agricultural products and pays the difference to the smallholder producer if the price on the market is below that (citation). Currently, PGPM rubber's minimum price is set by PGPM policy as US$ 0.67 (R$ 3.50) per kilo.

In addition the federal subvention, rubber extraction is also contemplated with a municipal and state subsidy policies that also pays the extractivist US$ 0.67 R$ 3,50 and (R$2,50) respectively per kilo of rubber. All these incentives combined mean that the rubber-tapper can now get R$ 17,00 (3,24 US$) per kilo of rubber.

***** table demonstrating how the final price is composed*****

6.2.1 The Rubber Tapping Process

The first stage of the rubber tapping process is called opening the *estradas*[9]. The extractivist enters the forest to find a suitable place, to open an estrada, an area with a suitable amount of rubber trees, so he can practice his activity. Afterward, he needs to clear a trail and mark the rubber trees, known as madeiras[10]. To drill and clear the road, the tapper will need assistance from his family or other community members - usually exchanging work days with them. The estrada cannot be more than 1m wide, and can have from 100-150 to 300-400 *madeiras*.

The latex is harvested by slicing a groove into the bark of the tree at a depth of one-quarter inch (6.4mm) with a hooked knife and peeling back bark. If done carefully and with skill this tapping panel will yield for up to 5 hours.

Figure 23: Rubber Tapping at São Raimundo Community
(credits: José Maic)

A rubber tree road can only be used for latex extraction every second day so that a tree can be left to rest for 2 days before the next cut. Thus, alternating cutting on different roads allows the rubber tree to reestablish itself. As a seringueiro explained:

[9] Rubber trail, more generally a road.
[10] Wood; specifically, a rubber tree unit

> "If you cut the road every day, you end up depleting it, it could run out of latex in less than a month and you could cause the tree to die,, because what keeps it alive is the milk[11]. The milk of a rubber tree is like our blood, once completely exhausted, human beings die. So is the rubber tree".

The extractivist must spend long lonely hours alone in the forest in order to perform the activity. Usually, the rubber tapper arrives at the 'mouth' of his road at midnight, and depending on his expertise and physical stamina – if he is fast to walk and cut the tree – he will be home around two or three pm. Talking about this issue an interviewee said:

> From home to the road, I spend 2 hours. I walk around 2 lakes with a sterndrive, a beach on foot and another lake with a sterndrive (lancha motor rabeta), and that's when I hit the road. It is a long and arduous journey because the roads are distant from the community, and you lose nights of sleep, but in the end, it is worth it, because you have a product that is sustainable, without harming the environment, as long as the management practices are obeyed."

After being harvested, the latex is taken to the extractivist home for preparation and on the same day, the process of latex coagulation is carried out. The latex is placed in a wooden box or a plastic tray and two types of natural products are applied. in Médio Juruá, only two types of products are used for the coagulation of the rubber: the Caxinguba [12]latex, extracted from another tree in the region with the same name. Alternatively, manipueira, extracted from cassava (manioc) is also used. The substances are mixed with the rubber and after six hours, the latex is completely curdled and ready to be used.

The latex is allowed to clot in trays. It is then pressed to remove excess boards, made of strong and durable type of wood. Within 12 or 24 hours, it is ready for being released. Following this, the rubber is allowed to dry at room temperature, because when exposed to the scorching sun, it sticks and melts. Once the rubber has dried for a week or so, the excess water has already drained away, and it is ready for sale.

[11] Latex.
[12] ***Ficus insipida*** is a common tropical tree from the family Moraceae growing in forest habitats along rivers

Figure 24: Coagulated Latex. (Credits: Jose Maic).
Credits: Seringueiro Medio Juruá

The rubber production a production is drained by ASPROC, through its Comercio Ribeirinho e Solidário. CRSC boat go up river supplying the canteens and on its way back take the rubber production in the communities (amongst other agroextractive offtake). In the driest periods (low tide season) the ASPROC ferry the boat cannot reach the port of the várzea communities and residents need to use motorized-canoes to take the production from the community to the river, where the ASPROC boat is moored. It can be a tortuous trip, as there are a lot of tree branches and sediments that fall into the river and rapids, making navigation difficult and even dangerous. There is the danger of the boat flooding on this route, incurring in the loss of the whole rubber production. here was even a risk of life in such events. In one of the circumstances, extractivists lost a boat engine that cost 11,000 BRL, the whole production and The rubber production can be traded for products in the CRSC canteens or the seringueiro can receive the money immediately, as ASPROC is able to advance the money to the extractivists, sometimes even in its totality.

Figure 25: Shipment Rubber Production (Source: ASPROC, 2022)

An interviewee explained that he works with two brothers and hopes to harvest 500 to 600kg of rubber this season. He 'owns' two estradas, one containing 150 madeiras and another one 250. He taps from August to December, but the harvesting period usually begins in July and ends in November. His plot area is located in a high area, so it is not inundated until December, thus this is not what happens. Generally, the season lasts until, November when the water is already going up. With the kilo of rubber as 16 BRL, he said is a good source of income, but as all the respondents, is not his only subsistence activity.

He undertakes agriculture (Farinha) and fishing (pirarucu) to compose his means of livelihood. Some families have 5 people, so each of them works in a road, being able to extract a great volume of rubber.

In order to trade the rubber, the extractivist must be associated to ASPROC and to receive the public subventions, the extractivist must be registered with the Declaration of Aptitude of PRONAF, or DAP. This registration has very short validity, and it expires every six months. To renovate, the extractivist has to go to Carauari to do it, or sometimes ASPROC facilitates the process, and tappers can renovate in the canteens. There are two types of DAP, one for extractive production and other for rubber extraction (need to be confirmed it).

Two discreet topics emerged from these interviews. One, is regarding the bad practices that were observed when the region had longer inundation periods[13], severely affecting the swidden fields and consequently the main source of income of the families in the region, the manioc agricultural practices. High river level lasted way over then usual; crops were destroyed causing severe hardship in the livelihoods of the study population. Also, a large number of the

[13] For two consecutive seasons 2019 and 2020, The riverine communities

houses were damaged. This topic surfaced in the interviews a few times, and when the interviewee was asked about it, he confirmed that this actually happened. There was a rush to cut syringe trees due to the shortage in agriculture.

> "Unfortunately not all members of the community have the same environmental consciousness to perform the rubber tapping, and because of the good remuneration that has been paid theses days, people that have never practiced the activity before, is now engaging in it, and are not worried about the sustainable guidelines to perform the activity. To cut the syringe requires knowledge, technique. These people who have never tapped rubber before, they entered the activity for greed, they are not worried about if there will be a road tomorrow, for his son or grandchildren. He highlights this kind of people exist everywhere, not only in Medio Juruá River. Their way of thinking is: if I can make 500kg and kill the road it doesn't, matter; I'll do whatever it takes to get the most of it.

ASPROC has set out detailed guidelines on how the rubber extraction must be performed, and good practice workshops has been carried out. In addition, there has been established a monitoring system, whereby the roads will be scroll through in order to verify if the procedures are being observed and the seringueiros that do not comply with the rules will be suspended from the activity.

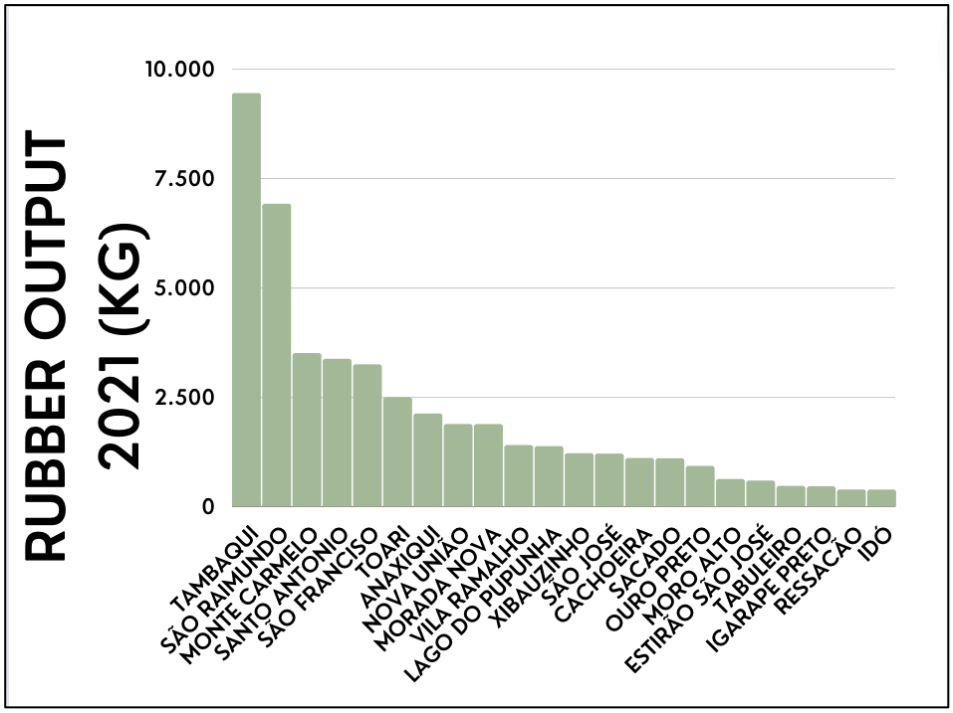


Figure 26: Volume of Rubber Produced by Community in 2021
(Source: ASPROC, 2022)

6.2.2 Veja's Agreement

There is a current partnership to trade the rubber extracted in the Region, a through an agreement signed between the shoe-company Veja and ASPROC. This deal was setlled in 2020 for the purchase of semi-processed wild rubber

Veja is a Paris-based footwear brand founded in 2004 by Sébastien Kopp and François-Ghislain Morillion, which the branding strategy is built on the premise that of being socially responsible sustainable business. The ethical fashion brand, which now employs a team of 200 is headquartered in Paris and had a revenue of US$120 million in annual sales in 2020 (Cernansky, 2020). Currently, Veja supplies its shoes to 1,800 retailers in 45 countries (Lo, 2018). The soles of Veja trainers are made from will rubber from the Amazon Rainforest as as economically sustainable way to fight against deforestation. In Brazil, where Veja does most of its sourcing and manufacturing, the founders have cultivated a close relationships with their producer communities since launch.

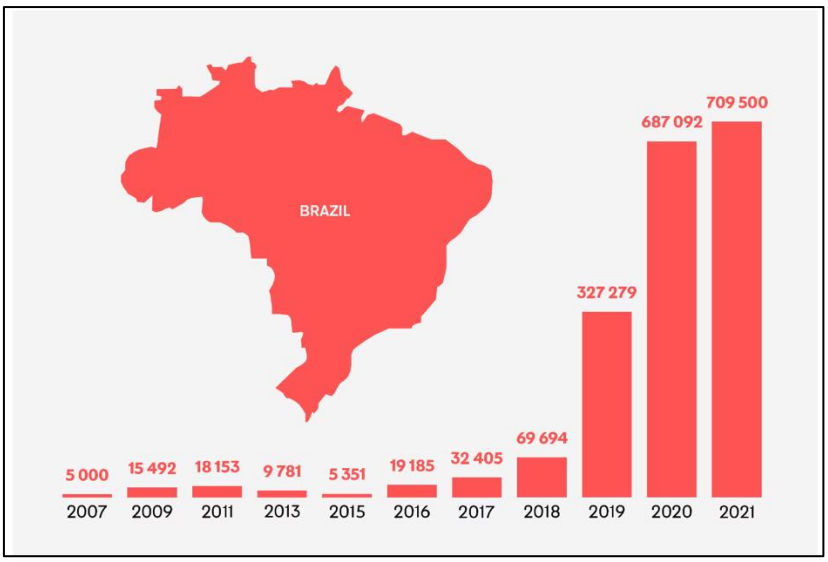


Figure 27: Rubber sourced in Amazonia by Veja 2007-2021
(Source: Veja website, 2022)

Brazil is where Veja does the most of its sourcing (figure 27).

As part of its efforts to ensure that its rubber is sourced responsibly, Veja has implemented a good practices protocol that its suppliers must follow. In addition, since 2020, Veja launched a monitoring platform, to monitor florest clearance rates practiced by the participating families. A program's pilot have started last year in Acre and worked well, so the company is intending to take it to othe Amazonian states.

Table 11: Volume of Rubber Production in Médio Juruá under Veja agreement

YEAR	VOLUME (ton)
2020	40
2021	60
2022	60

PRICE

Veja pays four times than the market price per kilo of CVP (semi-processed rubber) to its suppliers. Currently, the market price per kg of CVP is R$2,50.Veja paid a total of R$10.50 to rubber tappers in 2021. This price includes a bonus for quality and Social and Environmental

Services (PSES). As part of Fair for Life certification, associations and cooperatives receive an additional bonus of R$0,45 per kg of CVP (semi-processed rubber) produced in 2020 to invest in development projects. This price includes a bonus for quality and Social and Environmental Services (PSES). This rubber was certified in 2019 thanks to the support of Veja to improve the living conditions of the rubber tappers and protect the Amazonian forest.

Interview Excerpt:

> "The commodity price of wild rubber is 2,50 BRL, we give another 0,50. We anticipate this value to the cooperatives, so the producer gets it in cash at the moment we delivers the rubber. We pay 8,00 BRL as for socio-environmental services a quality premium, in amounting 12,00 BRL. In addition, we pay 3,50 per kilo bought to the cooperative for all the logistics, management etc. So in total, we pay 15,50 between producers and cooperative.

6.3 The Socioeconomic Sphere

Socioeconomic conditions have considerably improved in the Study Area since the establishment of the partnerships with Natura company. Although it is not possible to track the improvements with the deal itself, is evident that the agreement has directly influenced the improvement of social welfare region's rural population. This is observed in the resident's perception and in social indicators. One important indicator is the infant mortality rate that has dropped from 37.4 in to 11.97 in 2020 (figure 26).

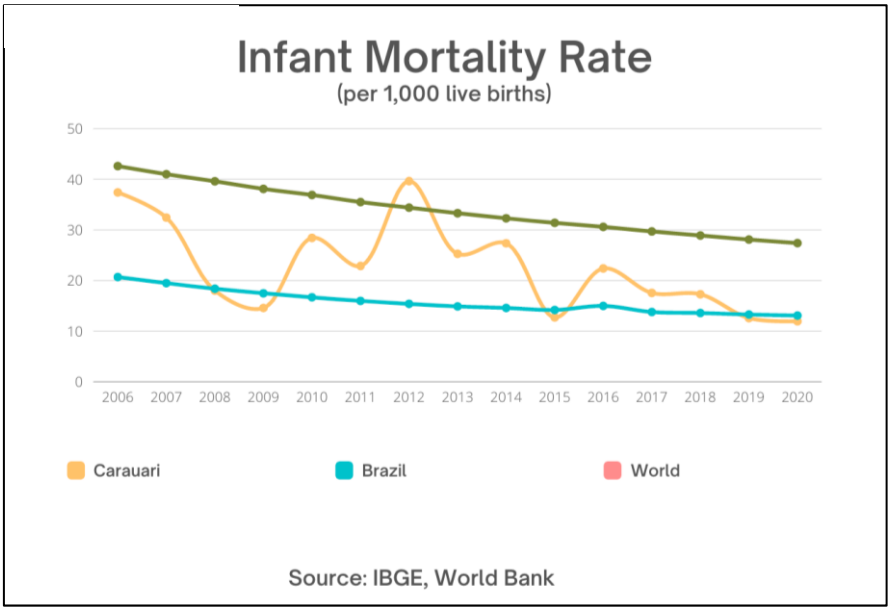


Figure 28: Infant Mortality Rate in Carauari (2006 – 2020)

A study to evaluate the socio-economic status of Roque community to the implementation of the Roque factory in 1998, Paredio (1998) found a very delicate situation in terms of welfare. Pregnancy in adolescence was a major problem. 90% of the births in 1997 were either teenagers or single moms (16 to 25 years old). Housing quality was very low either: 88% of the houses were covered in straw (cobertas de palha). There was no electricity in the community, only a generator which worked 2 hours every night. There were children from 4 to 7 years that were outside school already helping the family in the swidden fields. There was no elementary school in the community, so the residents had to move out to Carauari to continue studying from thr fitht grade onwards. Many of them would return due to the lack of place in the public school system or for not having financial means to live in the city.

The situation in Roque community has improved considerably since then. First improvements in the community, such as structure and education were brought by the UFAM's project by the time the vegetable oil chain started in 1998. Other major changes, are implemented by public development projects covering the entire municipality area, with government initiatives such as Crédito de Habitação do INCRA, and SANEAR project. A evidence of the living standards improvement in the region can be seen through its Human Development Index (HDI) (table12).

Table 12: HDI Ranking

	Carauari	**Ranking in the Amazon (out of 62 cities)**	**National Ranking (out of 5565 cities)**
1991	0.268	39º	4717º
2000	0.344	49º	5356º
2010	0.549	40º	5209

6.3.1 The Social Progress Index (IPS)

Another tool that can attest the welfare improvement the study population is the IPS. The Social Progress Index (IPS), measures countries according to their ability to meet the social and environmental needs of their citizens using fifty-four indicators in the areas of basic human needs, foundations of well-being, and opportunity to progress (SPI, 2021). The index is published by the nonprofit Social Progress Imperative, and is based on the writings of Amartya Sen, Douglass North, and Joseph Stiglitz. In Brazil the IPS was adapted for the Legal

Amazon[14] in 2014 and implemented in its 772 municipalities using secondary data (Santos et at. 2021). Since then, four editions of the IPS Amazonia have been published: 2014, 2018, 2019 and 2021. The index ranges from 0 (worst) to 100 (best).

In 2014, Natura and Coca-Cola partnered up and invested in the creation of the IPS Comunidades – Carauari, the first IPS based on primary data. The IPS Communidades – Médio Juruá Territory is stratified in Urban Carauari, Riverine Carauari (Resex Médio Juruá and RDS Uacari) Surrounding Areas (rural riverine communities in Caurari Municipality outside the reserves' perimeter) and have been carried out in 2014, 2017 and 2019.

Figure 29: Social Progress Index (IPS) Framework. Source: SPI, 2022

A major structural improvement in the study area was the implementations of Sanear Amazonia development project, aimed at improving access to water and sanitation of rural populations in the Amazon. A study demonstrated that the project had an improvement in the quality of life in the beneficiary population and it was observed that there was a reduction indicators that showed a 22% reduction in the rates of intestinal parasitosis infection and a 65% reduction in the prevalence rate of diarrhea in children under 12 years of age (see Berndardes et al. 2018).

[14]The Legal Amazon, known as "Amazônia Legal" in Portuguese, is the largest socio-geographic division in Brazil with more than five million square kilometers comprising the Brazilian states of Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Rondônia, Roraima, and Tocantins. This political and geographical region was created by Brazilian federal law dating back to 1953 in order to promote special protection and development policies for the Amazon area.

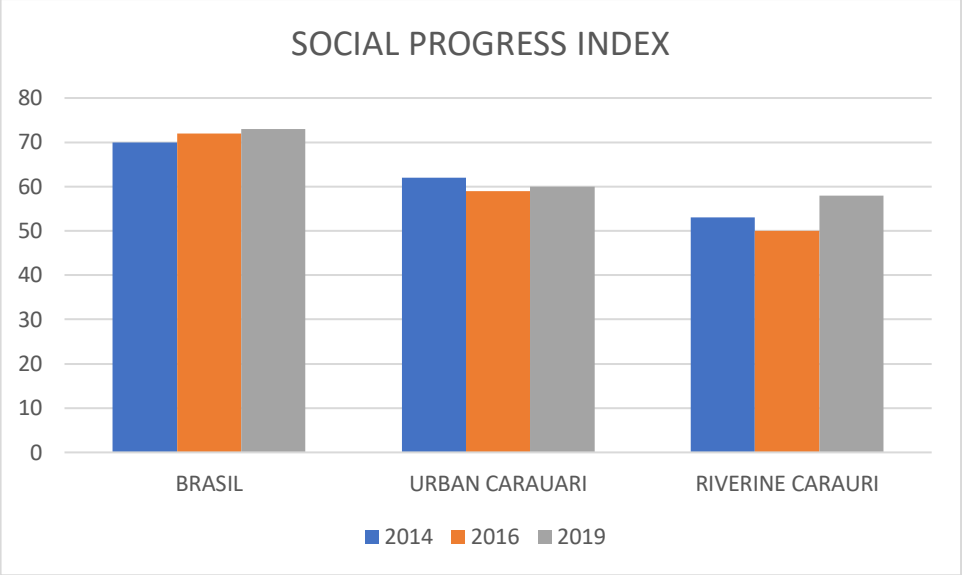


Figure 30: Social Progress Index

6.3.2 The Medio Juruá Territory Program (PTMJ)

The IPS provided a diagnosis of Medio Juruá region with comparable indicators such as water, sanitation, security and advanced education, enabling the identification of the most urgent demands of the region. Following the results of the first IPS Médio Juruá, a crucial meeting was held to discuss the IPS findings, where all important actors attended. This event marked the creation of the Territory of Médio Juruá Forum (TMJ Forum) an initiative created in 2014 by local organizations, government and non-government entities and the private sector with the aim of implementing a Territorial Development Plan for the region of Médio Juruá. Initially, the actions are limited to Carauari, mainly the 64 communities of the municipality rural area the in the Resex Médio Juruá, RDS Uacari and surrounding areas (TMJ Forum Internal Rules).

A local development plan designed based on the IPS results and Forum discussions was launched in 2017. The Médio Juruá Territory Program (PTMJ), an initiative funded by the American Agency of Development (USAID) and counter parted with funds of Natura and Coca-Cola, is operationalized by the community-based organizations and coordinated by the NGO SITAWI. The programme has five lines of action : i-conservation and development of productive chains, ii – education; iii – energy; iv – communication; v – monitoring studies and institutional advisory of the programme. Local organizations execute the first four axes and SITAWI executes the last one (figure X).

In its first phase (2017-2021) the PTJM had an investment of 16,8 million BRL (sitawi, 2022: 15), 8,9 million BRL was funded by USAID, the major donor's project.

The TMJ Forum and PTJM are major initiatives within the governance in the study area. Some of the actions implemented by the PTJM programme include:

- Acquisition of press and filter for processing andiroba and murumuru
- Training of extractivists in the operation of new equipment
- Consultancy for managing production processes and creating new products
- Launch of the product “Menino dos Veículos”, with local design and identity
- Youth entrepreneurship support programs

6.4 The Environmental Sphere

DEFORESTATION

The Médio Juruá Resex is one of the best-preserved protected areas in the Brazilian Amazon. Between 2008 and 2021, residents cleared just 3.44 km² of forest, one of the smallest deforestations among protected areas in the Brazilian Amazon (figure 29). The data are from Prodes, from Inpe. The low rates of deforestation in the Medio Juruá Basin is due to a variety of factors. Firstly, the Médio Juruá basin is not under particularly intense development pressure such as mining, plantation farms, hydropower, etc. In addition, the extractive reserves location is very distant of roads (the nearest is 400 km to the south, in the state of Acre). Furthermore, the perimeter of the both extractive reserves are surrounded by other protected areas (ICMBio, 2011).

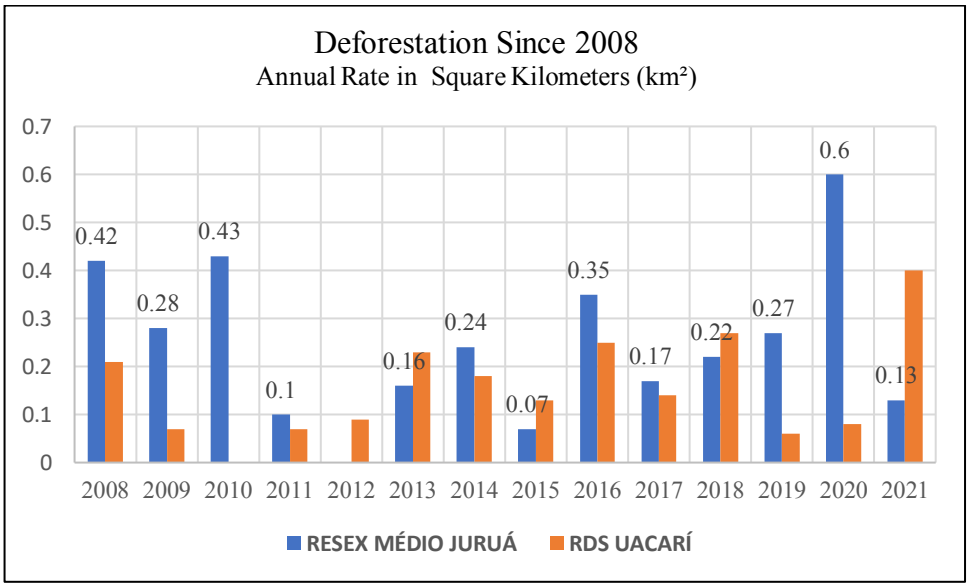


Figure 31: Deforestation Rate in the Study Area. Source: Terra Brasiois, INPE.

According to the ICMBio representative, one of the main pressures in the study area land use is posed to the cleared areas for agriculture. Taking the MJER as an example he explained that there are around 550 families in the reserve, each of them are allowed to have one hectare for swidden crops. So, this would entail at least 550 hectares of cleared forest. In order to curb defosrestation for agriculture purposes, it has been implemented alternative activities to generate income. The rubber extraction for instance is one of them. There is a project aiming to expand the families engaged in the activity and there are already 50 families enrolled to take

part in the project. Another project in this regard is the timber management exploitation, management of turtles and alligators.

BIODIVERSITY CONSERVATION

The local communities have a strong engagement in conservation and management practices. The environmental monitoring is carried out by the Voluntary Environment Agents (AAV), trained local people in charge of forest monitoring. Currently, there are 250 AAVs working in the study area. They are capacitated by the state secretary of environment [ProBuc: community monitoring]. Environmental education training is carried out by local organizations. AMECSARA has been implementing environmental awareness training within the communities.

One of the major pressures in biodiversity conservation is the illegal fishing of chelonians.. According to the ICMBio representative:

> "This specie was almost extinct, until the communities started to monitor the beaches more than 25 years ago, which has brought great results. The fishermen themselves say that it is easier to catch a turtle than ? The fact is that there is a great habit of eating this animal, which makes a turtle worth 400 BRL. If a beach monitor dozes off, a fisherman casts his net on the beach and in half an hour he can catch 18, 20 turtles. So you can do the math and see how much money a person can make with this practice. And in the moment of financial difficulty that we are going through, with so many people unemployed, it ends up being a very attractive source of income, even though it is an environmental crime. So I would say that the illegal fishing of chelonians is one of the biggest problems in the region today and although it is mostly practiced by people from outside the conservation units, there are also riverside dwellers who practice it".

In the past, one of the main pressures in the region and major source of conflicts was fishing. The situation improved dramatically improvement after of the establishment of the fishing agreement (SDS, 2010). In fact, the pirarucu value chain is one of the most successful initiatives in the region, in conservation. The project was responsible for recovering the fish population and now the co-management of the specie is lucrative and completely sustainable.

Among the evidences of its aquatic resources preservation is the Juruá River's recognition as a wetlands of international importance and its designation as Ramsar site in 2018. The Ramsar site area comprises the Baixo Juruá Extrative Reserve, Extractive Reserve Médio Juruá, the Deni Indigenous Land and the RDS Uacari[15]. The designation of Ramsar Sites is an initiative aimed at fostering protection and sustainability of water habitats across the world. Brazil is the country with the largest total extension of Ramsar sites, a title created by the Convention on Wetlands of International Importance, popularly known as Ramsar Convention after the city of Ramsar, Iran, where the convention was signed in 1971 (BRASIL, 2021).

[15] Rio Juruá Ramsar official website: https://rsis.ramsar.org/ris/2362

CHAPTER 7 DISCUSSION

7.1 NTFP Trade Contribution to the Household Income

The research presented here provides some key findings. The results indicate that engagement in both NFTP value chain extraction improves livelihoods in terms of annual household income, as good proportion of the study population, 84% (figure 16) participate in the oilseed extraction. However, while there is a positive contribution in terms of total household income at the individual and family level, raises in income are not substantial for most of the partakers. This can be seen as the majority of the collectors (~75%) have annual earnings between 120 and 480 BRL in average.

Conversely, one participating family earned R$ 9.184,00 in 2022 – a considerable sum of money, considering the rural income in Amazonian forests. This inequal distribution of benefits, is consistent with Pokorny (2012) claim, who demonstrated that the 'new' generation of market-based conservation arrangements in the Amazon do not significantly depart from earlier conservation and development projects in that they appear to increase inequality, with the better-off and more established families benefiting from external models and support.

Although partnerships provide a safer outlet for the study NTFPs, they are unable to stabilize income across the year, as the harvesting period of species occurs in specific months of the year. In addition, as there is the issue that the payment for the seeds is unpredictable. As explained by an interviewee, every so often the cash payment for the collected seeds is not promptly made, and collectors do not know when they will be paid.

At the same time, while the average NTFP income of participants is very modest this is a positive outcome, since incomes were equal or very close to zero when Natura's partnership was implemented, especially for women,. Moreover, as previous stated, the study population relies upon different livelihoods strategies for subsistence.

In order to make a meaningful income from seeds collection, community members need to have a household composition (i.e., a sufficient number of family members) who will allow them staying in the collecting area for long hours, or even days, situation that not all reserve residents possess. Further, besides of the forest type constraint, as the seed are only available

in seasonaly flooded areas, the activity requires some investment, as the collector needs to travel by boat to reach andirobal areas

This leads to the next issue. This heavy burden households face in the collection of forest products, especially considering that a collector earns modest US$ 4.04 (R$ 16,00) for a 12kg-bag of harvested Andiroba, for instance, must be accounted for. It is important to assess the cost-effectiveness of the study NTFP extraction. Forest-dependent households expend time and effort to harvest forest products, making it a labor-intensive livelihood strategy. Specially for households with fewer family members or located distant from collection areas, requiring household members to walk (or sail) farther distances and carry heavy loads when collecting product, as it is the case the study area, as reported by the informants. Not to mention that it is not only a matter of physical burden, but also having financial means to perform the activity, as to reach better areas of collection is necessary to use boat (fuel, food provision for camping in the forest, etc) but studies do not take into consideration. Moreover, time poverty can also be an issue for household members, especially for women who are responsible for much of household forest collection (Sunderland et al., 2014), because their opportunities to engage in other aspects of the household economy or personal development are limited by the lack of time (*Nerfa et al 2019*).

Conversely, engaging in the rubber trade, seems to be more cost-effective for the participating families, as, although being a time-consuming and physically demanding activity, has better financial returns. The rubber extraction have higher earnings (US$ 3.24/R$17/kg) and, in a yield can guarantee returns up to US$ 1,620.03 (R$ 8.500,00). However only approximately half of the households are financially benefited. Additionally the activity is only performed by men. The rubber tapping has been traditionally performed by men in the Amazon, being passed from one generation to another. Currently, in the study area there is no female rubber tapper. However, there are some women helping their husbands and fathers in the activity, especially the rubber tappers that do not have sons.

7.1.1 Issues Faced by Local Cooperatives

Considering the global scale of many markets, it also must be considered that the Amazon region is competing with other production sites worldwide. With regards to this, the region suffers from some significant competitive disadvantages, in particular long distances to

markets, poorly developed infrastructure, limited administrative and financial capacity (Clüsener-Godt and Sachs, 1995). These conditions, in general, limit competitiveness in international markets, in particular with regard to forest products. [Pokorny et al, 2010]

As it has been demonstrated, Roque's processing unit were rarely able to produce the contractual agreed volume of oil. Bauana agro-industry face the same issue, as due to the ecological characteristics, the species present a high seasonality. Some years the yield is very low, as in the 2021, where the production of Andiroba in Roque was only 2% of what was required by Natura. There are other limitations and difficulties in the market chain, mainly due to the lack of working capital due to the costly logistics involved. According to the collected data and interviews, the vegetable productive chain is financially viable, but the profit margin is too modest.

The vegetable oil value chain enterprise also suffered from severe cash flow problems, due to the lack of working capital combined with a lack of experience with and limited notion of financial management. The local cooperatives are not able to accumulate sufficient capital stock to ensure liquidity for the following years' operations, requiring the advancement of money by Natura. Additionally, the cooperative have to endure a compleAs a consequence of the high costs of production, profits were at best modest. The vegetable oil value chain is barely able to cover its operational costs.

Differently, the rubber trade rely heavily on subsidies and external support to be viable. ASPROC, the local partnering organization, carry out the logistics through the Riverine Trade of Solidarity and Citizenship, and the association receives funding from the Rainforest Foundation to cover the expenses. In addition, the rubber is well remunerated by VEJA, the partnering company, that pays environmental services, and there are three public subsidies, (municipal, state and federal) that compose rubber's attractive payment.

Another issue is the level of attractiveness of the studied NTFPs. Andiroba, Murumuru and Ucuúba, for instance, are very specific commodities, that do not have a global appeal. The Açaí chain is not so well stablished yet, and it has been traded under a state government agreement to supply public school canteens.

7.1.2 Risk Sharing and Bargaining Power

Partnerships refer to a range of formal and informal relationships and agreements between communities and companies with the expectation of realizing gains from sharing capacities and risks (Mayers, 2000; Ros-Tonen et al 2008). The findings indicate that the risk shared between the companies and local cooperatives is not born equally since the latter are weakest part on the commercial relation and bear the biggest part of potential risks. For instance, local communities have to cope with the irregularity of the natural production – as it was the case of the weak yield of Andiroba in 2018 where they delivered only 4% of the agreed contract – and also with the complex and costly logistics. Natura for its turn, can buy from another supplier, not incurring therefore, in risk of shortage.

The same happens in terms of bargaining power. Although one of the cooperative representatives has stated that the organizations possess considerable bargaining power when sitting at the negotiation table with Natura, this does not seem to be the case. Natura is their only buyer, leaving them no option but to accept the deal offered, which in turn diminishes considerably their bargaining power. Therefore, as community-corporation partnerships are considered to give more bargaining power to the former (Mayers and Vermeulen, 2002) and this does not seem to be the case, most appropriated nomenclature to define the commercial relationship between the companies and the forest dwellers.

7.2 Contribution of the NTFP-CCPS to Conservation

It was not possible to find previous studies that give concrete evidence for the contribution of the oil or rubber trade in conservation, despite being widely publicized by the partnering companies and stated by the local organizations. Most of the previous studies focused in the economic contributions of the arrangements. Similarly, although a real assessment of the environmental impacts of the NTFP extraction for commercialization in the study area falls outside of the scope of this study, the collected data could not find a direct relation between the low deforestation rates of the study area and the existence of the study NTFP trade. The reliance on manioc cultivation as a source of income is still predominant in both extractive reserves, and a main focus of forest clearance by the Extractive Reserve residents, especially in the most populated communities (source: ICMBio, ASPROC). According to the perception of interviewees and gathered data is the combination of several livelihoods strategies (pirarucu

and rubber value chain, trade of agricultural surplus, etc) that have the ability to prevent deforestation, not just one forestry enterprise.

The sustainability of NTFP harvesting

Extractivism is generally understood as a low-impact and sustainable activity, but this assumption can be misleading. Rubber tappers and indigenous groups have been viewed as longstanding stewards of the Amazon (Hall, 2007), and are generally subject to broad generalizations that portray them as a homogenous group of resource users who relate to their surrounding environment in a very benign and even harmonious manner (Cameron, 1999.). Much of the literature on indigenous and traditional peoples assumes that as non-destroyers these populations are by default defenders (Hetch & Cockburn, 1990). The presence of an intact ecosystem is generally taken as evidence of a local population's position as defenders, without substantiating the fact that they are actively defending their environment (Durning 1993). Such assumptions are often made without documentation of actual conservationist practices. Rubber tappers do posses an intimate connection to and knowledge of their local environment, but this in itself does not ensure that they will use that knowledge to promote conservation under all circumstances.

Browder (1992) calls into question the ability of extractive populations to conserve their environment stating that:

> "In contrast to the popular image of extractors living in prosperous harmony with their rainforest environment, ample evidence exists that most extractor households are poor, even by rural Amazonia standards. 'However, small-scale extractors are fully capable of destroying commercial forest resources when pressed by circumstances threatening their survival." (p.37).

Evidence on how forest dwellers can adopt non-sustainable practices if the situation requires can be found in the study area. After the Medio Juruá region suffered unprecedent floods for two consecutive years (2019, 2020), causing severe loss in the agriculture and damaging villagers, a boom into the rubber tapping practice occurred due to its current high financial return. This can be explained as natural consequence of the role of socioeconomic factors in influencing human-environment(citation).

Oil Trade

The nut gathering is promoted as a very effective way of maintaining the standing forest. This can be found in all report of the NGOs, companies and local organizations involved. When asked, one of the local organization representatives stated that although there is no technical report or scientific data on the contribution of seeds collection to environmental conservation in Medio Juruá, the perception of the residents is that there is a significant contribution, as it is more profitable to keep the standing tree as it will provide them income than cutting it. Moreover, it was not possible determine if the management plan is being enforced.

While extraction of NTFP is deemed as having low ecological impacts, several authors raise the hypothesis that the activity can cause significant cause significant ecological impacts and, therefore, may not always lead to environmental conservation (Brites, 2010). There are hypotheses that exploitation can affect everything from the exploited individual itself (e.g., by changing its growth rate), to the landscape in which the exploitation takes place (e.g., by opening roads or trails for product flow. Because of this, it would be necessary to implement monitoring of the ecological effects of exploitation on the exploited resource, as well as on other plant and animal species that occur in the harvesting area (e.g. HALL, 2007).

So, it seen to be urgent the adoption of monitoring of environmental impacts for the oilseed extractive trade, as the sustainability of the enterprise has been widely publicized by the partnering company, Natura. Additionaly, a recent study found that the Roque's processing plant production is unsustainable:

> "Roque processing plant production is unsustainable. There is no treatment of the residues generated that are stored in a plot area behind the plant. There is also the use of a large amount of diesel oil to generate energy to run the machines in the production process, a highly polluting source of energy, originating from the burning of fossil fuels." (Vidal, 2019: 37)

Rubber Trade

When it comes to the rubber harvesting, the results suggest that of the unwanted consequences have happened. The interviews have reported that of the NTFP trade: partnerships can

encourage overexploitation of resources, due to large economic benefits. The situation has been acknowledge and addressed by the cooperative.

7.3 Effectiveness of the Market-Based Approaches

This section will provide a reflection on the market-based approaches and commodification of forest products as an effective solution for the rainforest and the non-tribal populations inhabiting the Brazilian Amazon.

The findings of the current study are consistent with previous research, suggesting that while commercialization of NTFPs is being implemented as an economically competitive and ecologically sustainable activity, the income often is insufficient to lift them out of poverty (e.g., Angelsen & Wunder, 2003; Arnold, 2002; Homma, 2003). That is, the exploitation of NTFPs in the study area may not generate sufficient financial returns to promote the actual socioeconomic development of the communities (e.g., Wollenberg & Belcher, 2001).

Moreover, the presented data suggest that commercialization can also generate, among other problems, internal social inequalities (e.g., Shackleton et al., 2011), due to the disparity of income of the participating families. Results showed that while the majority (75%) earns from US$27.43 (R$ 140) to $91.46 (R$ 480), some families make huge sums of money, up to US$ 1,905.92 (R$10.000,00). There is a need to study the influx of cash in these communities so we can understand if there have been consequences for their capital social or inequality is being exacerbated. For instance, a study previously conducted in Roque and Pupuaí communities found a relationship between the cash influx from the oil trade and a decrease in the traditional cooperation within the community (Risek, 2010; see also: Risek, 2006; Risek & Morsello, 2012). Research on cooperation has demonstrated that increased market access and income may strengthen or weaken cooperation. Because cooperation is essential for community resilience in small-scale societies, negative effects on people's well-being can be expected if increased NTFP trade reduces cooperation.

Another major criticism is that, while the Bioeconomy in the Amazon has been promoted as a novel strategy, it has striking similarities to other previous non-successful development projects implemented in the past. Most of the bioeconomy's extractive products generate low income and only for a few months during the year, usually requiring the need to combination

of other activities to guarantee an adequate monthly income (Homma, 2022). Known for being a long-time critic of extractivism as solution for the Amazon landscape also and its people, Homma (2022) goes on to argue that:

> "making a "new bioeconomy" out of extractive collection, whose stocks are limited, dispersed, with low productivity of labor and land, characteristics inherent characteristics of each product regarding collection and processing, transportation, among others, is a major limitation. Additionally, there is the scale issue, since production does not always meet the dimensions of the market, as to price and quality." (p. 2).

At the same time, it is apparent that the NTFP trade is one of the few socio-economic strategies for traditional communities in Amazonia, as there is a lack of public policies addressing the issue. Despite of the new recent adoption of policies promoting the NTFP a (e.g the PGM and others) a concrete public policy aiming to eradicate poverty within traditional communities is almost inexistent. Cash transfer programs, such as Bolsa Família, Bolsa Floresta, and amongst a few state-led initiatives this regards. I argue that state inertia favors market-based approaches. In the same line, community-based forest arrangements are crucial in the Amazon context due to the lack of public policies aimed at addressing rural forest dwellers.

For instance, overwhelmingly, the study Extractive Reserves have been managed with low budget and almost no human resources. Reserve managers rund the protected unit with the Amazon Protected Areas Program (ARPA) funds, wchich only covers a fraction of what is need it. RDS Uacari and ResEx Médio Juruá managers (both are from the Carauari, one of them a former rubber tapper) strongly stated that if were not for the partnerships and projects withing the Médio Juruá governance (NGOs, donors and private actors) it would be impossible to run the units. As an illustration, a task force comprised by federal and state police officers, agents from IBAMA and ICMBio was assembled to dismantle an illegal mining operation in the Juruá River in November, 2022. The Brazilian federal and state government only paid for the inbound plane tickets for ths task force personnel. The remaining expenses (returning tickets, food and accommodation, fuel, etc) had to be arranged by the local organization. A huge combination of efforts needs to be made in order to provide all the needed resources in order to implement this operation. The boat was localized in the Juruá river around 200 km distant from the Extractive Reserves, and it was destroyed by the police officers, in accordance with the Brazilian Environmental code (figure 32). This would never be possible without the

financial means from Forum Médio Juruá members, and of course, the impressive organizational skills of the local leadership. According to the ICMBio representative, even the assigned police officers that carried out the task were impressed with how the level of organization and commitment of the *ribeirinhos* in the area.

Figure 32: Illegal Mining Boat Destroyed By Brazilian Authorities
Source: ICMBio

Amazon Brading | Green Marketing and the Partnering Companies Benefits

If the benefits of CCPs for the communities involved and for the environment is yet to be proved, the same cannot be said about the benefits incurred by the partnering companies. It has been argued that companies within the green niche (le Polain & Lambin, 2002) and the image association with the Amazon and its traditional peoples is really advantageous for the companies involved. Companies get far-reaching business opportunities, as consumer demand for greener products and services creates opportunities for businesses to promote their greener offerings, and introduce profitable new ones, all the while building their top-line sales,

enhancing their image, and bolstering the morale of employees newly engaged in a higher purpose (Ottman, 2011).

For instance, Natura's trajectory in socio-biodiversity, with the creation of EKOS as the first brand to use biodiverse ingredients from Brazil in its products, and the wide use of the Amazon brand as marketing strategy is deeply linked to the company's success. Similarly, Veja have as a business strategy the corporate social responsibility, i.e., focusing through sustainlbe sourced raw materials.

Another issue is the lack of national regulation for formulas derived from biodiversity, so a minimum concentration of active ingredients is not required in cosmetic product formulas. According to Resolutions RDC 07/2015 and RDC 432/2020 by the Brazilian Health Regulatory Agency (ANVISA), the labeling for cosmetics, personal care products and perfumes must contain the list of ingredients, not the concentration. Accordingly, unlike Veja, that states the percentage of rubber from Amazon used in its sneakers[16], Natura does not disclose the concentrations of the main active ingredients percentage in its label products. Therefore, it is uncertain if the functionality offered by Andiroba for instance, reaches the minimum of concentration level that determines the specific effect.

Lastly, while the introduction of traditional communities into global markets as means to reconcile conservation and poverty reduction has been criticized by a large and growing body of literature, this criticism disregards that, many times, the communities involved are partially inserted in the market economy and have wishes to own industrialized goods (Morsello, 2002); Moreover, these populations, who usually live in impoverished contexts, with limited access to income-generating activities, often opt for market insertion when there is this alternative (Godoy et al., 2005). This was evident by the conducted interviews, where all the seed collectors informants, for instance, not only deem to be very beneficial but also take pride in participating of the oil trade. The general perception is indeed very positive and something that voucher This can be illustrated how the interviewees take pride in the vegetable oil chain, and consider a extremely beneficial for the region. It became evident from interviews that the overall perception is very positive. The informants really take pride of the vegetable value

[16] The ESPLAR model, for instance, has 8 % of Amazonian rubber, according to the company. https://project.veja-store.com/en/single/transparency

chain and consider it important for their livelihoods and also for the sustainable use of the natural resources in the region Additonally, it was possible to notice that take proud in the improvements brought by the NFTP trade. As one interviewee recalled, there was an occasion that someone was visiting his community and got extremely surprised when saw a group of residents watching a football match in 60" TV. The informant demonstrated his pride by stating that usually, 'ousiders' do not have the dimension on how life standard in the riverine communities is, as the general assumption is that they do not have means of having such household appliances.

All in all, I argue that the main outcome of the partnerships in Medio Juruá is not the generated income but empowerment. Community empowerment as defined as a process through which 'people, especially poorer people, are enabled to take more control over their own lives, and secure a better livelihood with ownership of productive assets as one key element (Brown, 2002). This implies finding means to facilitate and assist the efforts to meet their needs, either through their own organizations or through pressure on the State or other groups to make them act in their interests (ibid).

LIMITATIONS OF THE CURRENT STUDY

Finally, a number of important limitations need to be considered. First, due to the lengthy data collection process, that went through almost until the submission date, I was not able to showcase all the analyzed data. While this did not pose any implication to the findings, some socioeconomic indicators could not be presented. In addition, the Natura company never answered my requests for an interview, which could have brought important information to the study. Additionally, the sample was not representative, as I could only reach out to informants living in communities with access to internet. A better understanding of how the community residing further away from Carauari views the topics explored in this study would ring valuable insight to the study.

CONCLUSION

This study has discussed some of the complexities and dynamics of the alliances and relationships between grassroots organizations and the corporate sector for the commercialization of non-timber forest products. One can say that the study population has

succeeded in developing an efficient model of extractivism via the addition of value to the resources they have collected inside the rainforest, keeping their traditional way of life, while helping to protect it.

While forest-related partnerships are no panacea for unsustainable and socially undesirable practices, there is no doubt that markets can generate financial resources that are urgently needed for investments in education, health, and infrastructure in the Amazon. It has been shown that minor increases in income can have significant effects on the condition of the poor, who are often in a precarious position.

In that respect, the prominent role of the local organizations in Médio Juruá within the Brazilian Amazon, should be underlined. In effect, the strong-led local organizations and empowered communities have managed to advantage of the opportunities brought by partnerships in their own benefit and keep being a successful example of community-based forest management.

However, the analysis presented here suggests that the attempts to integrate smallholders into markets for tree and forest products has little chance to significantly improving the situation of the rural poor, as these generally fail to consider possibilities for attacking the underlying causes of poverty. Additionally, the study confirmed the importance of adequately considering the specificities of the social system as well the ecological features of the forest products with a commercial potential. It is also important to depart from a realistic understanding of eventually existing potentials and to carefully observe and reflect on the indirect, often undesired consequences of such initiatives.

It is true that the partnerships face some problematic issues, however, they are innovative and might foster future experiences that could enhance social equity and sustainability in extractivism in the context of protected areas in the Amazon region.

I argue that, tailored public policies are urgent needed for poverty reduction of forest dependent people in the Brazilian Amazon. There is also a need for mainstreaming traditional people in the research agenda, as their proximity to forested landscapes makes them a second priority to environmental conservation. The bioeconomy by ‘keeping the standing forest’ as presented, rests on abstract and potential propositions that conflict with the present reality.

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