Bioeconomy and climate changes: agro-extractivist cooperatives experiences in the Brazilian Amazon

Bioeconomia e mudanças climáticas: experiências de cooperativas agroextrativistas na Amazônia brasileira

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ABSTRACT

In the current context, in which the debate of bioeconomy is gaining ground on the national scenario, agro-extractivists organised in cooperatives are gaining notoriety and entering new markets. In view of this, in the article, we analyse the experiences of Cooperativa dos Pequenos Produtores Agroextrativistas de Lago do Junco (Coppalj), in Maranhão; Cooperativa Central de Comercialização Extrativista do Acre (Cooperacre) and Cooperativa Agroextrativista dos Produtores Rurais do Vale do Rio Iaco (Cooperiaco), in Acre. This is a qualitative study in which semi-structured and open-ended interviews were carried out, together with document analysis. By organising cooperatives and recognising the importance of traditional practices for maintaining the forest, agro-extractivists have managed to boost their production, access new markets, and generate profits from environmental services. We conclude that the formulation of public policies and decision-making about the socio-biodiversity bioeconomy must consider agro-extractivists and the importance of their livelihoods for the conservation of the Amazon rainforest.

Keywords: Socio-biodiversity. Cooperativism. Agro-extractivists. Amazon.

RESUMO

No atual contexto em que o debate sobre bioeconomia ganha espaço no cenário nacional, agroextrativistas organizados em cooperativas ganham notoriedade e adentram novos mercados.

Diante disso, o presente artigo tem o objetivo de analisar as experiências da Cooperativa dos Pequenos Produtores Agroextrativistas de Lago do Junco (Coppalj), no Maranhão, da Cooperativa Central de Comercialização Extrativista do Acre (Cooperacre) e da Cooperativa Agroextrativista dos Produtores Rurais do Vale do Rio Iaco (Cooperiaco), no Acre. Trata-se de uma pesquisa qualitativa, na qual foram realizadas entrevistas semiestruturadas e abertas, somadas à análise documental. Por meio da organização cooperativa e do reconhecimento da importância das práticas tradicionais para a manutenção da floresta, os agroextrativistas conseguiram dinamizar a sua produção e acessar novos mercados, além de gerar ganhos por serviços ambientais. Concluímos que a formulação de políticas públicas e tomadas de decisões acerca da bioeconomia da sociobiodiversidade devem considerar os agroextrativistas e a importância dos seus modos de vida para a conservação da floresta amazônica.

Palavras-chaves: *Sociobiodiversidade. Cooperativismo. Agroextrativistas. Amazônia.*

1 INTRODUCTION

The growing worry about the planet's future has brought to the environmental debate agents with a bias, political agenda, and diverse ideologies (Ramcilovic-Suominen *et al*., 2022) and, as such, with different understandings about the alternatives to be adopted to help solve climate change consequences and implications. The bioeconomy, decarbonisation and the replacement of fossil fuels with renewable ones are among the list of actions proposed to achieve this goal (Reymão; Koury, 2023). To help that, there are attempts to add value to the products of traditional communities (Vecchione-Gonçalves, 2022) to serve market segments interested in consuming sustainable products (Euler; Albertin; Cialdella, 2023).

In a confluential process, many countries have been seeking to adapt and incorporate their state laws to include bioeconomic initiatives. In Brazil, seeing the opportunities that put the country in a strategic position – since around 60% of its territory is preserved (Pinto *et al*., 2023), companies and governments have committed themselves to actions that combine economic growth, sustainability and social inclusion (Nascimento, 2021).

Among the government actions planned, there is the "Amazon valorisation" and the "promoting value chains that value standing forests and the sustainable use of native forests" (Brasil, 2024, p. 78). These actions include vegetal extractivism, practised by many local agro-extractivist groups, extracting babaçu coconut and rubber trees. The engagement around this issue, as in the past, puts these agents once again at the centre of the debate arena by giving greater visibility to their local development initiatives but also comes up against the threats to territories and socio-biodiversity generated by environmental neoliberalism (Porto-Gonçalves, 2023).

During the redemocratisation period in Brazil, agro-extractivists became notorious for being "identified as the bearers of the practice and knowhow of sustainable use of the forest" (Michelotti, 2000, p. 17). Agro-extractivists here, is what is conventionally known as the traditional peoples and communities Their interests in improving their collective enterprises met with government actions and those of business groups seeking to distance themselves from the negative image with which large companies were associated due to the unsustainability of their forms of production.

According to the Decree Nº 6.040, 7th of February of 2007, that institutes *the Política Nacional de Desenvolvimento Sustentável dos Povos e Comunidades Tradicionais* (National policy for sustainable development of the traditional peoples and communities, or PNPCT), these are culturally differentiated groups that recognise themselves in this way, and, in addition, "have their own forms of social organisation, which occupy and use territories and natural resources as a condition for their cultural, social, religious, ancestral and economic reproduction, using knowledge, innovations and practices generated and transmitted by tradition" (Brasil, 2007).

In this way, through the economic exploitation of the forest, agro-extractivists have streamlined their production processes, entered new markets and demonstrated other forms of economy that are closer to human beings and nature (Pereira, 2016). However, they also faced problems in marketing and generating favourable economic gains, and many were unable to solve the problems they had set out to solve (Michelotti, 2000). Some of the emblematic cases of agro extractivists groups founded around this time are the *Cooperativa dos Pequenos Produtores Agroextrativistas de Lago do Junco* (Junco Lake Small Agro Extractivist Cooperative, or Coppalj), in the state of Maranhão, the *Cooperativa Central de Comercialização Extrativista do Acre* (Central Cooperative of Extractivism Commercialization of Acre, or Cooperacre) and the *Cooperativa Agroextrativista dos Produtores Rurais do Vale do Rio Iaco* (Agro Extractivist Cooperative of Rural Producers of the Iaco River Valley, or Cooperiaco), in the state of Acre, which emerged in the context of the recovery of land ownership by agro-extractivist communities after the democratic opening of the country and the subsequent politicisation of the environmental debate with the aim of enabling the agents linked to them to control natural resources, commercialise the products derived from them, and market insertion.

Our goal is to analyse the experiences from *Coppalj*, in Maranhão, and the *Cooperacre* and *Cooperiaco*, in Acre. From the analysis of the trajectory of those cooperatives we seek to demonstrate the importance of economic policies that strengthen agro extractivist initiatives and promote the autonomy of those involved with it.

2 TRADITIONAL PEOPLES AND COMMUNITIES, BIOECONOMY AND CLIMATE CHANGE

Since the end of the 20th century, researchers have been following the changing view of Amazonian peoples and communities: while they were once seen as obstacles to development, they soon became the "front line of modernity" due to the association of their knowledge and ways of life with environmental conservation (Calegare; Higuchi; Bruno, 2014; Cunha; Almeida, 2001). At the beginning of the current century, there was an effort to include products associated with biodiversity and these traditional peoples and communities in the markets through the bioeconomy (Vecchione-Gonçalves, 2022).

The historical and archaeological knowledge currently available shows that Amazonian biodiversity, especially some of the plants such as the Brazil nut tree, may be the result of human domestication and cultivation (Balée; Schaan, 2021). Many of these areas are currently occupied by indigenous and traditional communities and recent studies indicate the importance of the role of indigenous peoples and other traditional peoples and communities in environmental preservation, reduction and containment of the advance of deforestation (Almeida, 2021; Doblas; Oviedo, 2021).

In the face of climate change and the start of discussions related to tackling it, the Amazon has become central to global interests since it is the largest and most conserved area of tropical forest in the world (Reymão; Koury, 2023). In the context that began to take shape with the efforts of the United Nations in the 1990s, debates began about protecting biodiversity and combating climate change, a set of public policies was drawn up and financed through international cooperation agreements, contributing to the structuring of "a community-based forest economy" as opposed to a global economy (Vecchione-Gonçalves, 2022). In this way, there was a "migration from the protection of (socio)biodiversity to the promotion of the bioeconomy" (Vecchione-Gonçalves, 2022, p. 94).

However, the concept of the bioeconomy is still diffuse and encompasses many activities that, in the Amazon, go against the region's leading role in efforts to reduce climate change. The region's hegemonic economic model is based on agricultural and farming mega-projects, mineral exploration and infrastructure that lead to changes in land use and increased deforestation (Reymão; Koury, 2023).

The idea of development in the Amazon has always been in dispute. While on the one hand, there has been the implementation of large development projects, on the other, there has been an appreciation of the work of traditional communities and their environmental services, and, based on this recognition, there is the possibility of encouraging local production processes and integrating them into the value chain (Vecchione-Gonçalves, 2022). The problem, she points out, is to guarantee the participation, control and ownership of traditional peoples and communities over the value they produce.

Given the controversies, we have adopted the notion of the socio-biodiversity bioeconomy (Costa *et al*., 2021). In a recent study, the authors indicate that there are three kinds of bioeconomy. The first has a biotechnological orientation, which concerns the use of appropriable biobased research in various sectors of the economy, such as the production of biofuels. The second, called the bioeconomy of bio-resources, refers to the appropriation of biological raw materials and, finally, the bioecological, which "values ecological processes inherent to forest conservation, which optimise the use of energy and nutrients from biodiversity, as opposed to the mechanical-chemical technological paradigm that can lead to soil and watercourse degradation" (Costa *et al*., 2021, p. 5).

Considering the bioecological bioeconomy approach, the authors defend the concept of socio-biodiversity bioeconomy. This is because this kind carries with it the characteristics of products from socio-biodiversity, as they "originate in the knowledge and traditional cultural practices of collecting and extracting forest products *in natura*l ecosystems of high biological and sociocultural diversity, with an appreciation of ecological processes" (Costa *et al*., 2021, p. 6). In view of these characteristics, we will look at the experiences of traditional agro-extractivist communities in Maranhão and Acre.

3 METHODOLOGY

This is a qualitative, descriptive study in which the data was collected through interaction between the researcher, his interlocutors and other sources (Appolinário, 2012). The descriptive nature lies in the choice of data collection techniques and in the objective of the study (Gil, 2008) since we described the experience of the cooperatives, seeking to shed more light on their performance.

Open and semi-structured interviews were conducted with leaders and members of the three cooperatives, along with data obtained through documentary research. The field research was carried out discontinuously between February 2020 and March 2024. The choice of cooperatives and states was based on the authors' previous research experience.

A total of 22 interviews were carried out with men and women (young people and adults), two of which were by telephone and the others in person. The interviews covered the history of the creation of the cooperatives, their importance and the opportunities they generate for agro extractivists, general information about cooperative members, transformations and their current challenges, projects (their importance and functioning) and how the cooperatives act in the face of climate change. As far as ethical aspects are concerned, the interviews were recorded with the authorisation of the interlocutors and the assignment of the rights to use the information, subject to prior and free clarification of the research objectives. In addition, all the interlocutors' identities have been kept anonymous throughout the text.

Open-ended interviews allow for greater flexibility so that the researcher can adapt the questions depending on the course of the interview. In semi-structured interviews, on the other hand, a script of questions was used, and there was also the possibility of adapting it during the course of the research. Systematically listening to the memories of the interviewees made it possible to retrieve information and thus bring to light relevant data for understanding the different forms of organisation of the cooperatives analysed. This information was added to data from documentary research carried out at the cooperatives' headquarters, where archives and documents were consulted that allowed us to give

a more detailed account of the processes. In the case of *Coppalj*, we consulted the activity reports from 1991 to 2019, which allowed us to reconstruct the history presented in the results.

All the data from the transcribed interviews was analysed through vertical and horizontal readings, i.e. separately and then together (Michelat, 1987). Together with the documents, the interviews formed a corpus that makes up the results. Therefore, the data presented in the description of the experiences of *Coppalj*, *Cooperacre* and *Cooperiaco* comes from the combination of information from the documentary research, the interviews and dialogue with the relevant bibliography.

4 THE COPPALJ EXPERIENCE

Coppalj is composed of agro-extractivist men and women who make a living off of economic gains from the extraction and processing of the *Babaçu* almond (*Attalea speciosa Mart. ex Spreng*).

Although the cooperative's commercial operations began in 1991, even before it was organised, countless families were already exploiting the economic potential of this plant, which "in addition to providing many important products for local subsistence, has been a source of monetary income since the first decades of the last century" (Amaral Filho, 1989 *apud* Porro, 2019, p. 171). As a result, for many years it was one of the main sources of regional income (May, 1990).

In the 1980s, the fall in *Babaçu* oil exports and the market's interest in palm oil caused entrepreneurs and traders to lose interest in the oilseed (Porro, 2019). Production continued to be carried out by the extractivist families who depended heavily on its exploitation, but it was sold by middlemen to the regional soap and sanitiser industry.

In this way, *Babaçu* remained part of the local market through direct sales to traders and the mobilisation of small inter-group transactions. It was traditionally used to make oil for food consumption, although production was restricted due to the fact that families' income came from commercialisation *in natura*.

However, as May (1990, p. 20) points out, "in certain areas the *Babaçu* palms became a problematic resource and were quickly eradicated, limiting access and production for families". This is precisely due to the actions orchestrated by the state, which, through the privatisation of public lands and investment in corporate farming, changed not only the socio-cultural scenario but also the landscape of the region in which cattle ranches became predominant.

State incentives for livestock farming attracted professionals from various fields who discovered their vocation as breeders and started taking out loans to invest in this new line of business (Löher, 2009). These new owners not only began to control the use of the palm trees but also to cut them down to plant grass. Thus, with control over the *Babaçu* groves on the land they appropriated, it was accepted that the fruit could only be used by agro-extractivists who were allowed access.

Although the prohibitions imposed on the agro extractivists did not prevent them from carrying out the extractive practice, even if hidden or under threat, this period represented a hiatus in extraction due to the dispute that took place in the midst of the struggle for survival (Nascimento, 2021). Thus, the need to support themselves and their children led to the mobilisation of agro extractivists in defence of the *Babaçu* groves and, subsequently, brought new demands, such as better prices and new markets for the almonds.

After the 1990s, with the "redirection of the workers' organisational process in search of agricultural policy instruments that would support family production", the creation of "grassroots organisations founded on traditional institutions [...] played an important role in defining the economic strategies to be adopted" (Porro; Porro, 2015, p. 4). It was in this context that *Coppalj* was created in 1991

(Nascimento, 2021). Its initial activities consisted of the purchase of *Babaçu* almonds and the sale of goods, combined with the processing of oil, the experiments of which had been started by the *Grupo de Mulheres Quebradeiras de Coco* (Group of Women Coconut Breakers) in 1990. The aim was to facilitate the traditional grinding of roasted almonds by the coconut breakers to obtain oil.

However, in the initial period, a large part of *Coppalj's* almond production was sold without processing. Even when the *Babaçu* oil was sold to domestic industries, the prices they paid were unsatisfactory. For this reason, it was crucial to access the international market for oil extracted from the almonds so that the cooperative could add value to its production.

Thus, in 1994, through the mediation of the Association of Settlement Areas in the State of Maranhão (Assema), financially supported by international philanthropic organisations, *Coppalj* began to sell *Babaçu* oil to the American company Cultural Survival, which resold it to companies in Europe and the United States that used the raw material for food products and, above all, cosmetics. Among Cultural Survival's clients, The Body Shop sought out suppliers of extractive products and was interested in establishing a direct purchase.

In 1995, a representative of this company paid its first visit to the cooperative's headquarters, initiating a contract that enabled quarterly sales for a year and opened up new opportunities, as the company paid for half of the production in advance as a way of supporting the group (Sousa *et al*., 1998). Thus, the first export was made to The Body Shop at the end of that year. Since then, *Coppalj* has started to negotiate with other cosmetics companies with alleged social and environmental responsibilities that value the origin and characteristics of this extractive product (Porro *et al*., 2010).

In 1998, *Coppalj* obtained the organic quality seal from the Biodynamic Institute (IBD) as a result of its environmental responsibility, which enables it to sell *Babaçu* oil at a better price. Maintaining the seal is essential if it is to be able to fairly remunerate the cooperative families for extracting *Babaçu* almonds.

Coppalj's environmental policy has allowed it to work seriously on this issue. The policies instituted within the cooperative refer to the control of the use of pesticides and the preservation of palm trees, which mobilise members and non-members to take collective responsibility. One of the requirements imposed on members and those wishing to join is not to use pesticides, as the cooperative is a pioneer in marketing and organic production, which has earned it the organic quality seal.

The extractivists, who until recently knew only a limited number of industrial products derived from *Babaçu*, are now aware of a multitude of applications for *Babaçu* oil. However, these products are still inaccessible to many because of the price, lack of interest, or even ignorance of the existence of some brands.

In 2018, *Coppalj* was awarded an oil refining system by the Maranhão State Department of Family Agriculture (SAF), which enabled it to expand and improve its processing unit. After the installations and equipment adjustments, in 2020, the cooperative began its first experience with oil refining, specifically for food purposes. Over the years, the quantities sold on the domestic and international markets have varied, and there have been times when the volumes destined for domestic companies have exceeded exports (Nascimento, 2021).

5 THE COOPERACRE AND COOPERIACO EXPERIENCES

In Acre, the process of collective organisation of agro extractivists took place in the midst of a political scenario marked by the socio-territorial struggles of rubber tappers aimed at preserving their livelihoods. In addition to the emergence of unions and associations, cooperatives later became a strategic tool to enable these people to survive on the market (Ponte, 2020).

In order to understand the emergence of the collective organisations of Acre's agro extractivists, we have to go into the context of the rubber economy in the state, which corresponds to two distinct cycles: the first from mid-1879 to 1910, the period of the Industrial Revolution in which rubber made from the rubber tree (*Hevea brasiliensis*) latex, was an important raw material for the British; and the second from 1941 to 1945, the period after the first crisis in which rubber returned to the market as a result of the Second World War. During these cycles, rubber tappers were expropriated from their relationship with the forest to become the "engine" of the industry through the slave system of the *Aviamento* (Porto-Gonçalves, 2001; Ranzi, 2008).

With the collapse of rubber, the advance of the agricultural front became the biggest challenge for the (re)existence of rubber tappers and their maintenance in the forest. In the 1960s, with the policy of developing the Amazon implemented by the Brazilian government through the granting of tax incentives to economic groups from the centre-south of the country, a process of occupation and economic restructuring of the region was unleashed. It was marked by the introduction of extensive cattle ranching and the adoption of large-scale monocultures, a process that became known as the "agricultural front" (Ponte, 2014; Silva, 2005).

During this period, farmers from São Paulo invaded large areas of rubber plantations and forests, expelling and killing rubber tappers and indigenous peoples (Paula, 2004). As a result, there were a series of impacts that persist to this day, such as the expulsion of traditional communities from their territories and the vertiginous increase in deforestation, resulting in the irreversible loss of a significant part of the Amazon's socio-biodiversity (Ponte, 2014; Porto-Gonçalves, 2001).

Faced with the need to resist the expulsion from the forest and the destruction caused by the advance of large estates over their territories, the rubber tappers developed forms of collective action and alternatives to agrarian reform that aimed to meet their needs. Guided by their main leader, Chico Mendes, they made the *empates* their main form of resistance to the expulsion from the forest, the destruction caused by the advance of the agricultural front and the maintenance of their way of living and working (Paula, 2004; Ponte, 2014; Porto-Gonçalves, 2001).

The rubber tappers were mainly responsible for institutionalising the struggle for land in Acre via the Rural Workers' Trade Union Movement (MSTTR), which began in 1975 (Paula, 2016). The Rural Workers' Unions (STRs) of *Brasileia* and *Xapuri* were led, respectively, by leaders Wilson Pinheiro and Chico Mendes, the main actors of this movement in the state.

In 1982, when Chico Mendes took over the presidency of the *Xapuri* STR, the rubber tappers were looking for an alternative form of land reform that would meet their needs as a people who practised extractivism, fishing, hunting and agriculture (Paula, 2016). Because of the relationship they had with the forest, the countryside and the river, they did not easily adapt to the agrarian reform model which has the land itself as its main object of struggle. Since the crisis that hit the rubber plantations from 1912 onwards, the rubber tappers have only survived in the forest because they stopped being exclusively extractors and started practising agriculture through the roçados, transforming themselves into agro-extractive producers (Porto-Gonçalves, 2001). Driven by the need to maintain their way of life and work, they found alternatives in cooperatives and the Extractive Reserve model (Resex) that could crown their rubber-tapping identity (Porto-Gonçalves, 2001).

Thus, throughout the 1980s and 1990s, they created the *Xapuri* Agro Extractivist Cooperative (*Caex*) in 1988 and the Chico Mendes Resex in 1990 as part of the process of resisting and remaining in the forest, as well as maintaining their way of life as agro extractivists (Ponte, 2014).

Despite the progress made in conquering the territory, over the years, the Resex project has shown its inability to meet the needs of the rubber tappers, mainly due to the "progressive shift of the development strategies adopted by the different social actors towards the market sphere" (Paula,

2004, p. 93) and the consequent loss of autonomy for the rubber tappers. Cooperatives, on the other hand, have become important instruments of resistance and autonomy, "strategies for survival in society and in the market, with regional products" (Silva, 2005, p. 274). According to Ponte (2014, p. 150), "they appear as one of the fundamental focuses in commercialisation, as a way of gaining access to the consumer market for their products, without the extractivists being subjugated to middlemen".

Nunes (2008) contextualises agro-extractivist cooperativism in Acre in two moments: the first corresponds to the period from 1970 to 1999, characterised by the creation of *Caex* and the Mixed Cooperative of Agricultural and Extractive Production of the Municipalities of Epitaciolândia and Brasiléia (*Capeb/Compaeb*); and the second to 1999 to 2006, marked by the creation of the *Cooperacre*.

The creation of *Caex* in 1988 was the result of the rubber tappers' struggle to escape the middlemen and stay on the land. Its emergence "represented the effective milestone in the formation of agro-extractivist cooperative organisations in the state of Acre" (Nunes, 2007, p. 48). Despite being a solid organisation, *Caex* faced many management problems that led to its bankruptcy.

In the following decade, other cooperatives were set up, but they faced numerous difficulties, especially in getting their produce to the markets in the capital Rio Branco. They had to transport the products from their municipalities of origin to sell them to industries in the capital, sometimes being held hostage by middlemen and/or losing a significant part of their production. As a result, *Cooperacre* was set up to meet this demand for marketing agro-extractivist products.

Created in 2001 as part of a project by the *Frente Popular* (Popular Front) government, which preached the valorisation of traditional peoples and communities and the forest economy (Nunes, 2008; Ponte, 2014), *Cooperacre* is a central cooperative with the aim of facilitating the commercialisation process for agro extractivist families, enabling them to enter the market. Before its creation, most of the individual cooperatives were in debt to banks, and the extractivists were unable to access markets. At the time the research was carried out, the cooperative was essential for marketing the agro-extractivist products of a total of 36 individual cooperatives spread over 18 municipalities in Acre and was the main sales market for approximately 2,500 cooperative families.

Cooperacre is involved in the processing of various products, including the Brazil nut (*Bertholletia excelsa*), rubber, fruit pulp and peach palm (*Bactris gasipaes*), and intends to add coffee to its production list. This initiative seeks to promote sustainable development in harmony with the preservation of the rich natural and cultural diversity of the Amazon region.

As for its infrastructure, *Cooperacre* has five processing units: three for Brazil nuts, located in the municipalities of Rio Branco, Brasileia and Xapuri; one for rubber, in the municipality of Sena-Madureira; and one for fruit pulp, in the capital Rio Branco. In addition, 40 storage sheds were created with a total capacity of 200 tons each, distributed at the headquarters of the individual cooperatives. The cooperative has also acquired a number of assets, such as pick-up trucks, pack animals and quad bikes, building up a good structure for transporting production, which allows it to be more efficiently transported.

In addition to investments in infrastructure, training is given to workers at the processing units and to the extractivists themselves so that *Cooperacre* can seek better prices and access more promising markets, which have been expanding more and more. Today, most of its production is sold on the national and international markets, with the exception of fruit pulp, which is sold on the local market. The cooperative is building a more modern and technological industry with the aim of expanding pulp production to foreign, national and international markets.

Cooperacre's entry into the national market took place between 2009 and 2010, when the companies that dominated the market began to prioritise exports (mainly of nuts), opening up a space for smaller organisations that were just starting to market their products. *Cooperacre* currently has contracts with

large companies to supply nuts, such as Nutrimental and Nestlé. The cooperative exports this product to 11 countries, including the United States, Russia, Kuwait, Spain, the Netherlands and the United Kingdom.

In collaboration with the Veja Fair Trade Commerce and Export of Footwear and Accessories (Veja) company, *Cooperacre* is also engaged in improving the production chain for sustainable rubber obtained from native Amazonian rubber plantations. Rubber tappers play the crucial role of extracting latex, an activity that is vital to their livelihoods and which is carried out using traditional techniques.

The Fair Trade movement emerged in Europe during the post-war period, through the alternative trade initiative of Northern Hemisphere consumer associations concerned with improving the living conditions of disadvantaged small farmers in Southern Hemisphere countries, through non-charitable approaches (Maréchal, 2016). The principles of Fairtrade are based on moral values that guide its economic transactions. In this way, consumers play a crucial role in improving the living conditions of producers by contributing to increased financial and social gains through their participation in an international network of exchanges. In the context of this trade, commercial practices are guided by principles such as not exploiting workers, knowing the origin of the product and its producer, as well as its environmental and economic sustainability (Lima; Carvalho, 2020). Some of these values can be seen in *Veja's* practices when buying rubber in Acre.

Within the production chain coordinated by *Cooperacre*, the latex is transported to the affiliated cooperatives, where it goes through transformation processes, resulting in Virgin Pressed Cernambi (CVP), which is a semi-processed rubber. This product is then sent to the processing industry in the municipality of Sena Madureira, where it is refined to become Brazilian Dark Granulated (GEB), used to make the soles of Veja's shoes.

Through this collaboration, Veja ensures the payment of a price considered above the market average for native rubber, establishing a final value per kilo of production five times higher, which is made up of a combination of environmental products and services. While the average price paid for a kilo of rubber is approximately R$ 3.50 in Brazil, through the partnership between *Cooperacre* and Veja, each producer receives R$ 14.00 per kilo of the product *in natura*. In addition, the company uses a Quality and Socio-Environmental Services Bonus (*PSSA*) system and offers compensation of an additional R$ 2.00 for each kilo of rubber delivered by the cooperating rubber tappers, provided that they have met the pre-established social and environmental criteria.

One example of the cooperatives involved in the rubber production chain is the Agro Extractivist Cooperative of Rural Producers of the Iaco River Valley (*Cooperiaco*). Located in the municipality of Sena Madureira, in the Lower Acre region, *Cooperiaco* is responsible for buying Brazil nuts, copaiba oil and rubber in the municipality. However, between 2018 and 2022, the large number of fires and deforestation affected the quality of the nuts, causing commercial interest to decline in the municipality. This led the cooperative to stop buying the product and focus solely on rubber.

The relationship with the company is based on well-established goals and rules, which are based on the logic of Fair Trade and sustainable development. There is a socio-economic relationship where fair trade is at one end and environmental preservation at the other. Within this logic, the company requires proof of the sustainable origin of the rubber based on "four requirements" (Chart 1) that must be met by the rubber tappers.

Chart 1 – The "four cares" for guaranteeing the sustainable origin of rubber

I. Care with the forest	Keeping deforestation in the allotment legal, i.e. complying with current environmental legislation with regard to deforestation and preservation of the environment, as well as the Conservation Unit's use plan or Forest Code, depending on the case - in order to preserve the extractivist way of life and production.
II. Care with the quality of the rubber	Produce quality native rubber: - Raw slab or pressed cookie, clean, dry and identified according to brand; - Store in a cool, ventilated place on a wooden or wire stand, protected from the sun and rain; - The maximum weight of the board is set at 25kg.
III. Care for the rubber tree	Carry out felling in accordance with regulations on good rubber tree management practices: - 2 days a week per road; - Flag or band-type panel, or bead (cut types); - Superficial cutting.
IV. Care for the cooperative/association	Follow the production organisation agreements regarding dates and places of delivery of rubber and payment, keep their documentation up to date, as well as participation in assemblies and meetings of the cooperative/ association.

Source: Made by the authors with the research data (2024).

In addition to the four cares, each rubber tapper undertakes to ensure that there is no slave or child labour on his property and that the participation of young people in production activities does not compromise their school attendance. The cooperatives monitor compliance with these rules and make the rubber tappers aware of proper management practices and environmental preservation. The cooperatives' strategies for control and monitoring are varied, using satellite images and even photographs of the rubber trees when it is not possible to visit the properties.

In turn, raising awareness about environmental preservation is a long-term task that challenges the managers of the cooperatives and the agro-extractivists themselves. Despite their diversity, they are the main actors in their (re)existence and the most capable of changing how they deal with the forest to preserve it. It is important to note that rubber tappers do not have a single relationship with the forest. In addition to extractivism, they also carry out agriculture, fishing, and livestock farming, which are equally important activities for their survival.

In many cases, cattle ranching has become the main activity for the agro extractivists of the Chico Mendes *Resex* and other Conservation Units due to the lack of public policies to support the diversification and strengthening of the extractive sector, as well as the liquidity provided by cattle, whether through buying and selling herds or leasing pastures (Fittipaldy; Castelo, 2023; Pilnik *et al*., 2022). The rubber tappers would, therefore, be "reinserting themselves into the logic of capital, becoming producers for the market in productive sectors other than traditional extractivism" (Fittipaldy; Castelo, 2023, p. 65).

Within the context of the rubber tappers' struggle to preserve their way of life, their collective engagement in cooperatives gives considerable institutional backing to the claim that these peoples are the legitimate managers and protectors of the territories they occupy and have the capacity to make a significant contribution to environmental debates. The current situation demonstrates that models other than environmental neoliberalism (Porto-Gonçalves, 2023) need to be devised, ones that break away from the destructive logic of capital.

It is not, therefore, a question of mere environmental preservation, of keeping the forest standing, but of the effective integration of populations capable of managing ecosystems through agro extractivism into modern markets, with fair remuneration for their services and an improvement in their standard of living (Almeida, 2021). The experience of *Cooperacre* and the other cooperatives associated with Fair Trade in Acre shows that giving rubber tappers a leading role in environmental conservation and valuing their work can be one of the ways to think about the future.

6 ENGAGEMENT IN ENVIRONMENTAL CAUSES AND ECONOMIC GAINS

The experience of *Coppalj*, *Cooperacre* and *Cooperiaco* illustrates how engagement in environmental causes has generated economic gains and given visibility to agro-extractivists, enabling them to expand their production and enter new markets. This success may be associated with the socio-cultural origin of their products, especially in contexts where there is a strong emphasis on cultural identities, healthy eating and cosmetics based on vegetable oils (Nascimento, 2021).

The fact that these products come from the Amazon and are highly socially inclusive increases their importance, as they are linked to the networks in which they are made. In addition, the exploitation of these markers has become profitable and a way of generating wealth by giving the products authenticity. This is what Boltanski and Esquerre (2016, p. 15) call the "process of enriching things", which consists of selecting from the multiplicity of characteristics that a given thing presents, the one considered relevant that should be privileged and brought to the fore in the discourses that accompany its circulation.

The exploitation of "special qualities" demonstrates how contemporary processes of economic globalisation are related to localities and cultural forms (Harvey, 2005), as well as to the creation of identities and the formation of differences (Boltanski; Esquerre, 2016). This may be due to the fact that the globalised market generates discourses, changes in habits and other alterations that become a badge of good taste (Barbosa *et al*., 2011; Monteiro *et al*., 2004).

Although many consumers are unaware of the route taken by agro-extractivist products, they are driven by the need to also be part of this wave because of the process of creating value around them. However, they can also be encouraged by government policies that seek to stimulate sustainable production and consumption, bringing together different sectors of society.

Brazil's new industrial policy plays an important role in this regard by linking the supply of these products with their demand. The country has one of the largest stocks of preserved natural resources and the technical capacity for sustainable production (Pinto *et al*., 2023), which promotes commercial opportunities and arouses business interest. The government has focused mainly on taking advantage of this natural potential to achieve economic development and attract investors who prefer products with these characteristics. It has also sought to involve landowners in conservation and sustainable development through remuneration for environmental services. This strategy seeks to reconcile the recovery of degraded areas, the reduction of forest degradation and greenhouse gas (GHG) emissions, which can be translated into conservation credits.

Compensation for environmental services can help the country meet government targets and international agreements and can be a strategic way of boosting sustainable development and tackling the challenges of climate change and deforestation, as well as a way of valuing agro extractivists who, through their way of life, develop traditional conservation practices (Embrapa, 2023). However, it is necessary to create mechanisms for traditional peoples and communities to participate effectively in discussions and decisions about these values and the mechanisms for passing them on through value chains (Vecchione-Gonçalves, 2022).

However, it is important to be aware of the entry of agents who are antagonistic to the communities and who may find a window of opportunity in these policies, which could intensify socio-territorial conflicts and inequalities in the enjoyment of the benefits derived from the use of local biodiversity. Therefore, the observations made by organisations and social movements demanding the participation of agro-extractivists in decisions regarding their territories and public policies are valid so that their autonomy is safeguarded. An example of this can be seen in the Amazon Charter, in which Amazonian social movements called for more participation by traditional peoples and communities and criticised the prevalence of market logic to the detriment of the interests of forest peoples (Carta da Amazônia, 2021).

As Euler, Aubertin and Cialdella (2023) show, the Food and Agriculture Organization of the United Nations (FAO) recommends the inclusion of governance mechanisms that ensure consultation and risk management processes with communities. For the authors, "bioeconomy policies aimed at the Amazon need to respond to environmental challenges and reduce social inequalities, and be accompanied by infrastructure development policies and empowerment of local organisations" (Euler; Albertin; Cialdella, 2023, p. 17). It is also hoped that state support and public policies will enable endogenous development based on dialogue between the different actors in the region, particularly traditional peoples and communities. (Reymão; Koury, 2023).

If these issues are disregarded, successful implementation will come up against access to and use of the land since many agro-extractivist communities still face insecurity in their access to natural resources as a result of past and recent policies. Although the current proposals offer the possibility of thinking about other projects that contribute to the economic and productive autonomy of local social agents, there are disasters that have been building up over time and which will tend to worsen if communities are not the main drivers of actions in their territories. The risk is the advance of new fronts associated with big commercial capital into areas where agro-extractivist is practised by traditional communities and new disputes over resources that are still preserved.

7 FINAL CONSIDERATIONS

Engagement in environmental causes has not only led to disputes over definitions and the entry of new subjects into the debate arena but has also contributed to the valorisation of groups seen as forest protectors. In this way, it has played an important role in recognising agro-extractivists who not only produce but also live sustainably, allowing them to rebuild processes that enable productive and technological diversification in their territories like the cooperatives analysed here.

The founding of the *Coppalj*, in Maranhão; and the *Cooperacre* and the *Cooperiaco*, in Acre, among others, occurred in a context of re-democratization in which important policies aimed at the rural environment were created and enabled farmers to start on a new path. As analysed by Grisa and Schneider (2014), this period saw the introduction of new ideas and differentiated rural development policies based on the recognition that family production units are not incompatible with agricultural development. In this sense, we cannot ignore the socio-economic and productive gains that agro-extractivists made, which represented a new level for their enterprises.

The experiences analysed demonstrate the importance of economic policies that contribute to the preservation of the forest, strengthen agro-extractivist initiatives and promote the autonomy of those involved. In all three cases, the organisation of agro-extractivists through cooperatives was crucial for the valorisation of products related to the cooperative families' ways of life. Specifically, in the case of the rubber tappers in Acre, the monetary increase as compensation for the environmental services provided is one of the ways in which traditional practices can be encouraged and added to the socio-biodiversity bioeconomy chains.

There is a clear inability on the part of the state to come up with effective policies to control deforestation and protect socio-biodiversity in the Amazon region, which, coupled with the neoliberal dismantling led by Jair Bolsonaro's government, has directly impacted the forest and the lives of agro extractivist populations. In this way, the partnership between international capital and cooperatives, as in the cases of *Cooperacre* and *Cooperiaco*, creates an alternative market for agro-extractivist products and strengthens their production chain. This means receiving a fairer price for the product and, in addition, conserving the forest as a territory where traditional peoples and communities live and work.

Partnerships between the public and private sectors are needed to conserve biodiversity and maintain forests. In addition, it is necessary for traditional peoples and communities to participate in discussions, public policy formulations, and decision-making about the bioeconomy of socio-diversity to value those whose ways of life preserve a considerable part of the Amazon rainforest. Otherwise, actions aimed at diversifying the production of agro-extractivist cooperatives will be in vain, as the natural resources indispensable for their production will be at great risk of being eliminated once and for all.

Our article contributes to the debate by presenting the experiences of agro extractivists as a possibility of combining bioeconomy and forest maintenance. However, it has limitations, such as the impact of the initiatives on the quality of life and economy of the families. It is, therefore, crucial that future research delves deeper into the subject, taking into account regional specificities. There is a pressing need for multidisciplinary studies that integrate economic, environmental and social perspectives in order to develop more effective and sustainable strategies for mitigating climate change and promoting the bioeconomy of Amazonian peoples' knowledge.

NOTES

1 | For further reading on this concept, refer to, Cunha and Almeida (2001), and Calegare, Higuchi and Bruno (2014).

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