

STRUCTURE AND ORGANIZATION OF THE BARU SUPPLY CHAIN IN THE CERRADO: CHALLENGES AND OPPORTUNITIES FOR SUSTAINABILITY

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A fair baru supply chain for the Cerrado

In September 2019, in the context of the 9th Meeting of the Cerrado Peoples in Brasília, we had the first workshop for the fair and solidarity trade of the baru chain. During the seminar, we worked with civil society organizations, companies, cooperatives, and extractivists that operate in the chain of this Cerrado fruit. It was the first time that private agents of the chain had the opportunity to learn more about the other actors involved in the process.

During the meeting, the participants argued that only a greater approximation among the players could guarantee the conservation of native Cerrado areas against the threats of deforestation. The development of a fair baru chain ensures the Cerrado standing and the livelihood for many traditional populations living in the biome.

That is why we developed this second study to deepen further the knowledge about the configuration of the baru chains, their participants, and their challenges.

We realized that in recent years there had been a tremendous increase in interest in this fruit. The baru can reach a price 100 times higher in the foreign market than its harvest price in the field.

In this sense, all agents in the chain must strengthen the cooperatives and ensure that sustainability principles and the conservation of the Cerrado can be put into practice. This also includes the implementation of good

procurement policies of the companies that are involved in the chain. Wickibold, Unilever, Carrefour, Beraca, Labra, Natura, GPA, Bio Mundo, among others, can positively influence the conservation of the Cerrado and the maintenance of the way of life of its peoples if they take into consideration the lessons learned at the seminars.

There are still quality, regularity, financing, and logistics challenges in the chain. On the other hand, we are at the beginning of a process that can still be shaped. Suppose large-scale plantations replace the cooperatives. In that case, rural populations will lose their extra income from the baru harvest and the natural Cerrado landscapes with their baru trees will disappear. If this scenario becomes a reality, it will be much more difficult to reverse the situation.

That is why we would like to encourage the private sector to preventively engage with the actors of the baru chain to ensure that it is fair to the people of the Cerrado and contributes to the conservation of the biome. This engagement is perfectly aligned with the materiality of the ESG policies, with the goals of fighting climate change, protecting biodiversity, and the right of traditional peoples to manage their territory.

After all, a fair supply chain of baru in the Cerrado guarantees more income for traditional peoples and more climate resilience to the biome's productive landscapes.

Mchael Becke **Michael Becker** Implementation Strategy



1. Introduction

The baru (*Dipteryx alata*), also known as cumaru, pau-cumaru, cambaru or cumbaru, is a native fruit of the Cerrado, a rich biome that offers several ecosystem services, which are essential for human survival and welfare. Although it is not part of the dietary habits for the majority of Brazil's population, it has been drawing attention from agro-industries and consumers because of its high nutritional value, versatility and distinctive taste.

The baru supply chain is established with a diverse network of entities and people, and a series of interrelated processes to ensure production, commerce, and consumption, in both national and international trade circles. The proper working of this chain is directly dependent on the work of the extractive local communities. Therefore, strengthening the networks of this supply chain is considered a key path for the Cerrado's conservation agenda, food security, welfare and maintenance of these local communities' lifestyles.

The different nuances of production, commerce and consumption, as well as the established relations between several categories of agents involved in the supply chain are objects of analysis in "The Study of Collaborative Networks: strengthening of the baru sustainable supply chain for social and economic development of local communities and Cerrado's conservation", a project executed by Sustainable Development Center of the University of Brasília (CDS/UnB), and supported by the Critical Ecosystem Partnership Fund, International Institute of Education of Brazil (IEB), and the private company Working: Professional Integration Association.

This document, which references the "Summary Report: organization and structure of the baru supply chain in the Cerrado: challenges and opportunities for sustainability", presents a synthesis of results, reflections and lessons brought by this Study, and presents notes about challenges, threats, and opportunities observed in the baru supply chain. It focuses on contributing to the joint development of organization processes that allow maximizing the social and economic benefits between the actors involved in this supply chain. Consequently, this study aims to promote biodiversity conservation and to assure economic, social and environmental sustainability of the baru supply chain. CLICK HERE TO GET ACCESS TO THE SUMMARY REPORT USED AS REFERENCE FOR THIS DOCUMENT

The data for this study was collected mainly from semi-open interviews of 113 people involved in the baru supply chain. Among these, 59 people were interviewed via videoconference and 54 were interviewed in person, in Brasília (DF), being outdoors and following all preventive measures against Covid-19 prescribed by the local health authorities. In all of the resulting documents of this study, anonymity has been preserved, both of the interviewed people and their respective organizations. Besides the interviews, information was collected among actors of the supply chain in two virtual events: "Baru: paths for certification", and "Baru network: analyses and perspectives", but also with relevant people and specialists in correlated subjects.

Hopefully, reading this Executive Summary will offer subsidies for: 1) the purpose of building and consolidating integrated actions and regional and national policies, seeking the strengthening of the supply chain, through promoting fair, inclusive trade, 2) granting sustainable life means for the local communities and 3) fostering the biodiversity conservation and maintenance of ecosystem services of the Cerrado.

2. From management to consumption: actors, roles and relations identified in the baru supply chain

The arrival of baru to its final consumer depends on a supply chain that involves a complex set of networks which, in turn, consist of several categories of actors with different roles, beginning with management and harvest and all the way up to commercialization. The organization of these networks is established by commerce relations, but also collaborative, supportive, trustful and conflicting relations. The study points out that the way these actors organize themselves has a direct impact on the sustainability of ecosystems and on the principles and values of fair trade.

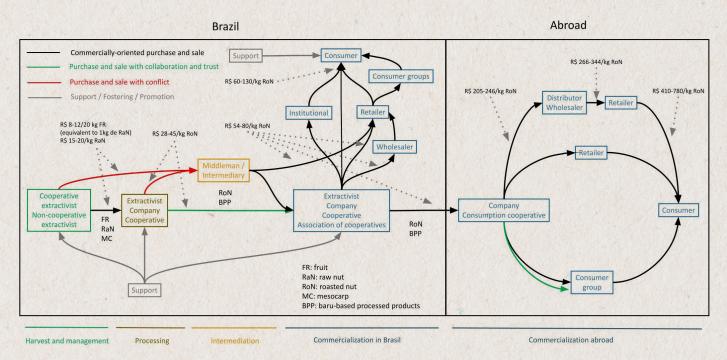


Figure 1: General model of the baru production/commercialization chain in the Cerrado

2.1 Actors identified in the baru supply chain

Overall, the study has identified 10 actors involved in the baru supply chain, which include categories of extractivist farmers, cooperatives, companies, consumers and support actors. This can be seen in Figure 1.

The extraction of baru is carried out by a family farmer, who can either commercialize directly with the final consumer or with a cooperative, a company, or even

an association of cooperatives. They can also commercialize with a middleman, who can offer baru directly to the consumer or resell to a processing or retail company. The commercialization of baru can be held in either national or international markets, and in both markets one can single out wholesalers or distributors, retailers and consumers, those being individuals or organized in consumer groups.

There are also support actors, which include organizations, agencies, institutions, social movements, or networks that work fostering actions, studies, disseminating and promoting the baru nut.

ACTORS IDENTIFIED IN THE BARU SUPPLY CHAIN

1. Extractivist worker: family farmer or crofter who dedicates to extractive activity of baru.

2. Middleman/Intermediary: commercialization actor who mediates between extractivist workers and consumers, undertaking, for example, transportation and resells of baru to a processing or retail company.

3. Cooperative: includes cooperatives and associations of rural producers, family farming and solidarity-based economy.

4. Association of cooperatives: group of cooperatives articulated targeting a shared purpose, also known as cooperative, federation, or cooperatives' union/cluster.

5. Small business/Small-scale industry: this category encompasses several business and industry actors, artisanal entrepreneurs linked to the food industry, such as restaurants, bakeries and ice cream stores, which transform baru into derived products, sweet and savory dishes, and commercialize them.

6. Export company: dedicated primarily to the exporting trade activity, eventually including purchase and processing centers for baru.

7. Retailer: includes natural products delicatessens, food trucks, stores, established markets and itinerant farmers markets of nuts, cereals, dry fruits, bulk grains, natural and artisanal products, as well as supplements.

8. Big retailer: processing, distributing and trading food products

companies with national and international range, which include baru among its products or ingredients.

9. Consumer: people who buy and/or use baru products for personal consumption.

10. Support: heterogeneous category of organizations for the promotion and stimulation of the baru trade, which include development agencies, government agencies, social technologies and innovation incubators, technical assistance and rural extension institutes, high education and research institutes, organizations of healthy eating movements, socioenvironmental organizations, solidarity-based economy networks, and business support services.

2.2 Roles identified in the baru supply chain

The study has identified five primary roles in the baru supply chain, performed by the actors named above (Figure 1). In some cases, there are actors who perform the same role, heightening the fact that the collaboration between the several actors of this chain is essential to promoting social, economic and environmental sustainability of this activity.

The harvest and management of baru trees can be performed by extractivist workers in cooperatives, family farmers, rural settlement people, traditional populations, indigenous peoples, and people who harvest native seeds, among others. They carry out the management of native areas of Cerrado, keeping trees selectively in pastures and growing them at small or large scale. On the other hand, processing, which involves processing and manufacture of higher added value products, can be performed by extractivist workers or inside cooperatives or companies. The intermediation is carried out by the intermediary actor or middleman, who buys in natura fruit, raw or roasted nuts directly from extractivist workers.

Commercialization, in turn, can be developed directly by the extractivist actor, the cooperative or even by a company or association of cooperatives. And it can be carried out in both national and international markets. The support is performed by the actors who play a direct role in relation to production/commercialization process of baru through fostering actions, studies, dissemination or promotion of the nut.

2.3. Relations identified between the actors in the baru supply chain

The proper working and the sustainability of the baru supply chain are strongly determined by the sorts of relations established between the different actors in it. To better understand these networks, the relations are separated into three categories, according to social interactions between the actors, which determine the role of commerce relations for the chain's sustainability (Figure 1).

The first one corresponds to the economic trade relations of baru products, generally mediated by money, and characterized as purchase and sale relations. They present commercial purposes and occur from a commercial agreement.

The second category we identified is the one including trade relations permeated by values of solidarity-based economy – guarantee of fair pricing paid to the cooperatives – and sustainability – conjoined definitions of principles of baru harvest and management that guarantee maintaining the ecosystem and the baru trees. These relations are characterized as purchase and sale with collaboration and trust, and occur, for example, when an extractivist worker sells baru fruits to a cooperative to which this worker is associated.

There is a third category related to the purchase and sale relations that involve conflicts between the actors, such as those between extractivist workers and middlemen. They are based on the trade opportunity of the moment, with no future commitment. This kind of relation sets risks to the social sustainability of the baru supply chain – the middleman actor does not guarantee purchase in the long term –, to the economy – prices offered can be low or have wide fluctuation – and to the ecosystem – the economic trade occurs regardless of unsustainable management practices of baru trees, which could compromise tree regeneration.

Besides the different categories of commercial relations, support relations were also identified in the baru chain. Relations of support in favor of the sustainability of the supply chain are highlighted considering the dissemination work consisting of recipes created by renowned chefs or the execution of cultural and gastronomic events, in which baru is brought to light. Another example of support relation, generally oriented towards extractivist workers, is the assistance from non-government organizations (NGOs) to the structuring of the chain.



3. Production and commercialization circuits

The baru supply chain is characterized by several production and commercialization circuits, either company or cooperative based. It can target both national and international markets, and perform in a relatively independent and competitive way.

Throughout this chain, a marked increase in selling prices is observed at different stages, and such figures were disclosed by the people interviewed. Value adding varies according to the size of the supply circuit – if it is either short or long – and the model of production/commercialization networks – national or international market.

An important observation is that, during the fruit harvest and nut extraction stages, the value is considered low, and it increases drastically in the final steps of distribution and retail, especially in the commerce chain focused on the foreign market. Therefore, value is accrued according to each step of the processing of baru – raw or roasted nut – and the distribution circuit – if it is between extractivist workers and cooperatives or if it is between extractivist workers and retailers, for example.

In the stage of fruit harvest and nut extraction, the minimum price for selling the amount of 1 kg of nuts was R\$ 8 in the 2019 harvest, meanwhile the sales price for the final consumer in Brazil varied between R\$ 60 – 130. In addition, the consumer of

a store abroad found roasted baru nuts for the average sales price of R\$ 780, in the same season (Figure 2). According to the results of this study, it is possible to estimate that, from the average sales price for the final consumer in the national market (R\$ 95 = 100%), about 11% corresponds to fruit harvest, 7% to fruit breaking, 20% to nut roasting, 33% to storage, packing, distribution and sale to retailers, and 29% to retailers' sales to final consumers (Figure 3). On the other hand, when it comes to the final consumer abroad, it is estimated that, from the average sales price per kilogram of nuts (R\$ 595 = 100%), 2% corresponds to fruit harvest, 1% to fruit break, 3% to nut roasting, 5% to export, 27% to import companies sales, 14% to re-sales and distribution of wholesalers, and 49% to retailers' sales to final consumers (Figure 4).



Figure 2: Sales prices of 1 kg of nuts at different stages of the baru chain

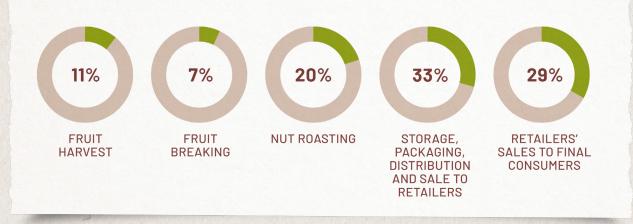


Figure 3: Contribution of the different stages of production/commercialization to the added value of baru products in the national market

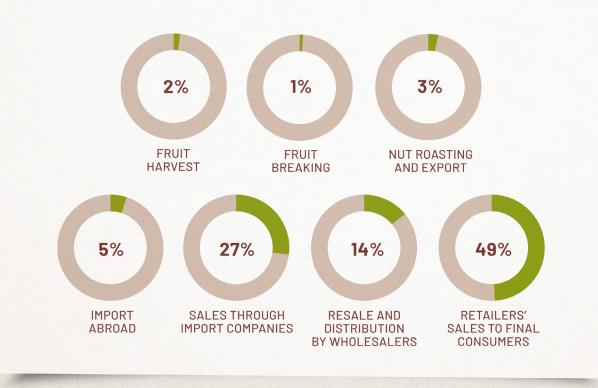


Figure 4: Contribution of the different stages of production/commercialization to the added value of baru products in the international market

Short circuit:

That in which the extractivist actor performs harvest and processing activities of baru, and then sells its products directly to the consumer actor.

Long circuit:

These supply circuits involve more actors and steps, as it occurs, for example, when an extractivist worker sells baru to a middleman which, in turn, resells it to a processing cooperative that resells the products to a company or association of cooperatives for distribution at wholesale or retail.

3.1 National market

The interviews taken place with the baru supply chain actors reveal three specific models of production/commercialization networks in the national market, focused on extractivist workers either in cooperative or not, and in small-scale processing industries.

Model 1: Production/commercialization network for the Brazilian market, focused on non-cooperative workers

This business model occurs when extractivist workers with no cooperative association commercialize baru – *in natura* or its processed products – through several paths of direct or indirect sale, frequently coming from collaboration and trust relations, based on fidelity, ancientness and emotional involvement (Figure 5). The sale can take place directly between the non-cooperative worker and the consumer, by order, itinerant farmers markets, or indirectly, by an intermediary of a retail company or intermediary actors, being a scenario filled with conflicting relations.

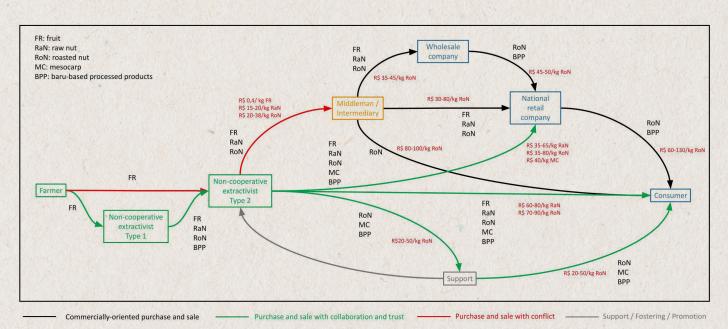


Figure 5: National model 1 - Production/Commercialization network model for the Brazilian market, focused on non-cooperative workers

Model 2: Production/commercialization network for the Brazilian market, focused on cooperative workers

This business model occurs when extractivist women and men harvest baru, either in their own property or in someone else's, and sell its fruit – the full piece and/or

the raw nut – for the cooperative (Figure 6). From this point on, other members of the cooperative proceed with processing, improving and/or manufacturing of products with higher added value, for its commercialization. It has been seen that this model fosters the attainment of sustainable results of the supply chain, because it strengthens social organizations and commerce of baru on the basis of an effective appreciation of the extractive activity, therefore contributing to elevating professionalism in the supply chain.

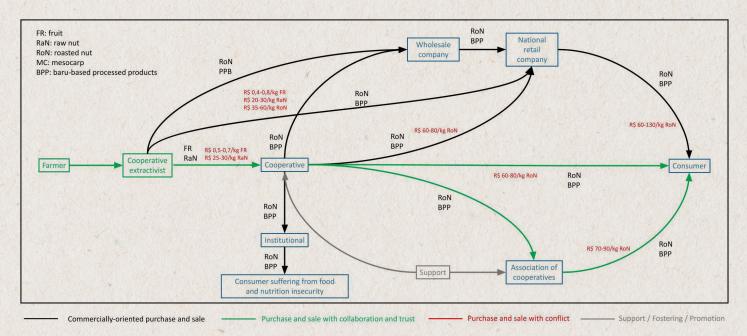


Figure 6: National model 2 - Production/Commercialization network model for the Brazilian market, focused on cooperative workers

Model 3: Production/commercialization network for the Brazilian market, focused on small-scale product processing industries

This business model involves a heterogeneous and growing group of small businesses and small-scale food industries that use baru for manufacturing products with higher added value, and its aim is to achieve bigger visibility and projection of these items in the market (Figure 7). This group encompasses restaurants, ice cream stores, pâtisseries, chocolate stores and bakeries that use the nut in its fresh, cooled or frozen form, even small businesses that manufacture several processed products, such as paste, sauce, cream, butter, granola, biscuits, cookies, liquors, jam and candies. In general, this is a production/commercialization circuit that aims to increase consumer trust and to achieve bigger visibility and projection in the baru-based product market.

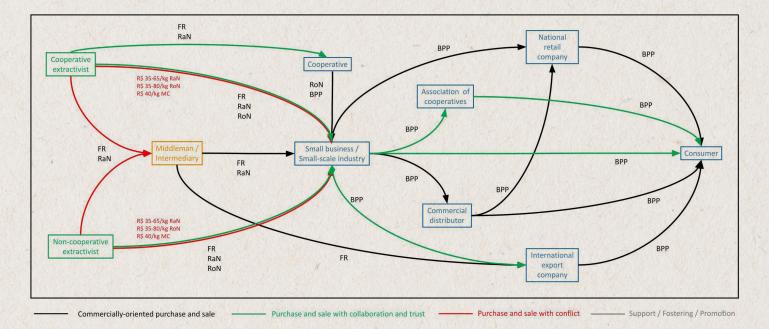


Figure 7: National model 3 - Production/Commercialization network model for the Brazilian market, focused on small-scale product processing industries. FR: fruit, RaN: raw nut, RoN: roasted nut, MC: mesocarp, BPP: baru-based processed products

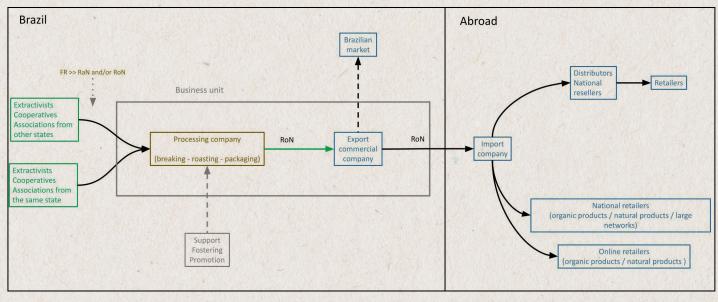


3.2 International market

The nutritional characteristics and the ease of conservation, storage and longdistance transportation without losing its properties are strong factors that contribute to boosting the baru commercialization and consumption flow abroad. From the interviews, it was possible to identify six models of production/commercialization circuit models directed towards exportation, which varied according to the sorts of actors involved and the pattern of relations between them and different implications for economic, social and environmental sustainability of the baru supply chain.

Model 1: Production/commercialization network for international market with a business unit integrating with processing unit and export company in Brazil

It is characterized by the control of a main business unit related only with the processing and exporting stages of baru, which results in strong dependence on suppliers in Brazil and buyers abroad, due to being a weakly organized and vulnerable production/commercialization circuit (Figure 8).



Commercially-oriented purchase and sale Purchase and sale with collaboration and trust Purchase and sale with conflict Support / Fostering / Promotion

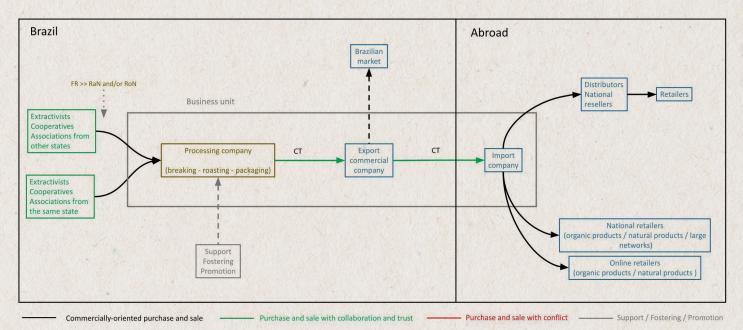
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FR >> RaN and/or RoN Indicates that the baru nut sales are widely superior to the raw and/or roasted nut sales.

Figure 8: International model 1 - Production/commercialization network for international market with a business unit integrating with processing unit and export company in Brazil

Model 2: Production/commercialization network for international market with a business unit integrating with processes unit, export company in Brazil and import company abroad

It presents some enhancement in control flow, because the main business unit, beyond controlling processing and exporting stages, also integrates an import company located abroad (Figure 9). However, it suffers with the same dependencies in relation to supply and purchase of baru identified in Model 1.



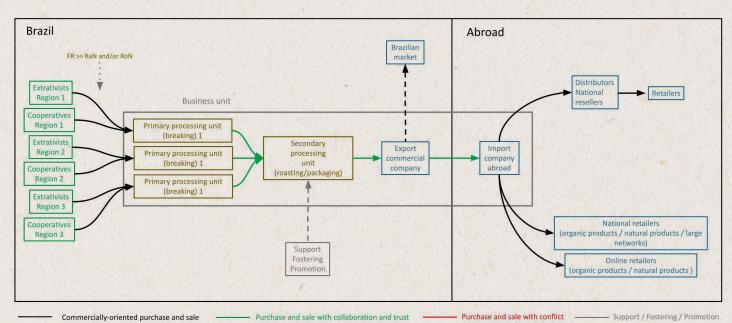
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FR >> RaN and/or RoN Indicates that the baru nut sales are widely superior to the raw and/or roasted nut sales.

Figure 9: International model 2 - Production/commercialization network for international market with a business unit integrating with processing unit, export company in Brazil and import company abroad

Model 3: Production/commercialization network for international market with a business unit integrating with primary regional processing companies, secondary processing companies, export company in Brazil and import company abroad

The main company enhances even further its control over the supply chain, interconnected to a bigger number of processes through relations based upon collaboration and trust, and finds itself in a stronger position to negotiate long-term contracts with big purchasing companies abroad (Figure 10). However, it still has a limited potential to reinforce strong partnerships with extractivist workers and/or cooperatives.



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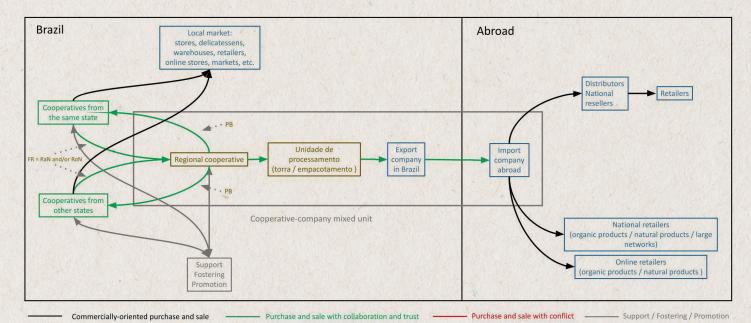
FR >> RaN and/or RoN Indicates that the baru nut sales are widely superior to the raw and/or roasted nut sales.

Figure 10: International model 3 - Production/commercialization network for international market with a business unit integrating with primary regional processing companies, secondary processing companies, export company in Brazil and import company abroad



Model 4: Production/commercialization network for international market with a mixed unit integrating regional cooperatives, local processing company, export company in Brazil and import company abroad

It presents enhanced organization and integration between the actors of the chain, who perform collaboratively from harvest and management up to the sale of baru to distributors and retailers abroad (Figure 11). In this model - which differences itself from those previous mentioned because of the existence of a formal association between companies and cooperatives that operate as a mixed unit of company-cooperative extractivist people receive more guarantees of the baru sale to the cooperative, in long-term and for a fairer price, thus enhancing the commercialization pipelines and strengthening and/or consolidating the placement of the cooperative and its brands.



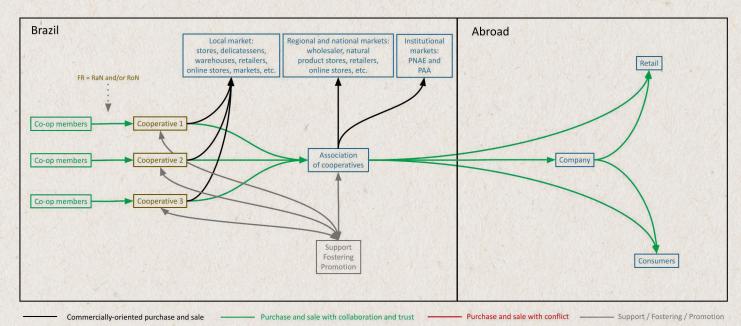
FR = RaN and/or RoN: Indicates that the baru nut sales are equivalente to those of raw and/or roasted nuts.

Figure 11: International model 4 - Production/commercialization network for international market with a mixed unit integrating regional cooperatives, local processing company, export company in Brazil and import company abroad

Model 5: Production/commercialization network for international market integrating processing cooperatives, association of cooperatives in Brazil and import company abroad

It is characterized by the formation of a collaborative arrangement that connects cooperative production and business commercialization, facilitating the flow of

information among the actors (Figure 12). It presents a bigger potential of establishment of long-term and trust relations. Beyond that, because there is a direct connection between the cooperative production in Brazil and baru commerce abroad, it has a high potential for certification and more equitable distribution of value adding among the different actors.

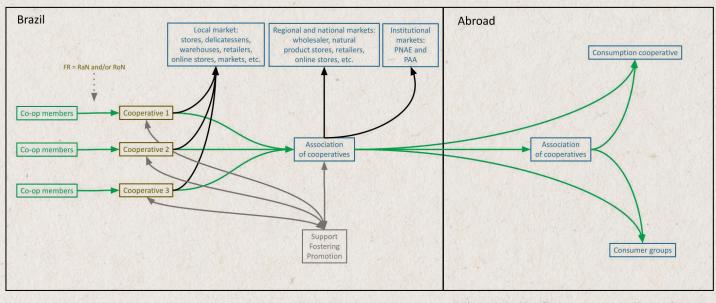


FR = RaN and/or RoN: Indicates that the baru nut sales are equivalente to those of raw and/or roasted nuts.

Figure 12: International model 5 - Production/commercialization network for international market integrating processing cooperatives, association of cooperatives in Brazil and import company abroad

Model 6: Inter-cooperative model of production commercialization network for international market integrating processing cooperatives, association of cooperatives and consumption cooperatives

The only model that does not articulate itself around a company as the central actor. The commercial circuit, associated with values such as certification of organic origin and fair trade, based on collaboration, is integrated from a collaborative process in an inter-cooperative network (Figure 13). It is by the diversification of baru markets and by the organization and collaboration between different cooperative categories, that this model becomes less dependent on a single commerce circuit and has potential to assure the economic, social and environmental sustainability of the baru.



Commercially-oriented purchase and sale — Purchase and sale with collaboration and trust — Purchase and sale with conflict — Support / Fostering / Promotion

FR = RaN and/or RoN: Indicates that the baru nut sales are equivalente to those of raw and/or roasted nuts

Figure 13: International model 6 - Inter-cooperative model of production/commercialization network for international market integrating processing cooperatives, association of cooperatives and consumption cooperatives

It is perceived that the first five export models perform under business control, and the first three don't count with involvement of cooperatives, a factor that limits the role of extractivist workers or cooperatives to harvest and sale of products, with no value adding. On the other hand, in models 4, 5 and 6 the cooperatives have a pivotal role in the production and consumption process. Extractivist workers have bigger probabilities of signing contracts for supplying baru in long-term and by a fair price, of selling products with higher added value, of being involved in promotion of sustainable practices for harvest and management of baru, and implement tracking and certification of the baru sold abroad.

It is important to highlight that Model 6 was identified as a promising circuit, with all the advantages associated with fair trade, in which collaboration between cooperatives allows integrations of the baru's and others' supply chains involved in the Cerrado's socio-biodiversity or in family farming. It strengths building a productive project for the whole supply chain from a shared perspective of fair trade and of promotion of economic, social and environmental sustainability. However, it is the only model that wasn't effectively put in place, particularly in the baru supply chain – the interviews revealed that only the export models 1 to 5 were active and functioning in the baru supply chain in 2019 and/or 2020.



4. Challenges, threats and opportunities associated with the baru supply chain

Elements about challenges, threats and opportunities associated with the baru supply chain are highlighted by this present Executive Summary on the basis of perceptions collected throughout the interviews taken placed by The Study of Collaborative Networks: strengthening of the baru sustainable supply chain for social and economic development of local communities and Cerrado's conservation. That way, it is important to emphasize that all subjects and considerations in this matter reflect the point of view of people who are directly or indirectly integrated in some of the production/commercialization circuits.

Actors

Strategic actions aiming at the union and collaboration between the baru supply chain actors were identified as essential for facing the multiple threats the Cerrado faces and draw attention to the need for promoting an economic model that recognizes conservation and preservation of the environment as an indispensable requirement for sustainable development and that takes in consideration social, cultural and environmental elements of this biome and its connections with others Brazilian biomes.

Enabling and professionalizing the production in local communities, promoting cooperativism or assisting in business planning, for example, were also some of the highlighted elements in the matter of handling threats of economic aspect, such as inequality in distribution of economic benefits among the actors throughout the chain. Actions like these are equally strategic to deal with threats related to sociocultural aspects identified, such as individualism, concentration of power (authoritarianism of certain leaders) and lack of a collaborative or participative culture of the actors (especially extractivist workers), who weaken the creation of networks and difficult the structuring of associations or cooperatives and/or the development of horizontal and robust arrangements in the long-term.

Benefits and sustainability

One of the challenges related to strengthening of the baru supply chain is linked to the unequal benefits between the actors involved in the different circuits of production and commercialization of baru, with little value adding to the local extractive communities. Added value, however, is much greater for the actors that perform in the final stages of commercialization. In addition to this scenery, the accelerated advance of agribusiness in the Cerrado, as well as the lack of organization and mobilization, and the vulnerability of local extractive communities are big threats facing the future and sustainability of the baru supply chain.

Logistic aspects

Building productive and commercial relationships based on reciprocal trust stands out as an important element for enhancing this supply chain organization and, thus, facing challenges linked to logistic aspects of the fluxes of the baru, such as irregularities in supply. Fostering collaborations for definition of shared rules of processing, storage, packing and transportation of baru, aiming at quality standardization of the product in national and international markets, was also stressed as strategic for increasing added value, contributing this way to hone product appreciation among consumers.

Collaborative and integrated processes

The involvement between extractivist workers and small farmers in productive processes was regarded as essential for building the supply chain and amplifying collective benefits, as efficiency gain in activities, growth in production scales, and incorporation of added value in production, reduction in fixed costs and strengthening in negotiation/bargain power. In order to strengthen the chain's organization, some of the interviewed people suggested organizing the production units in local communities with an integrated view, in the sense of working from seedling nursery production up to management and conservation of baru in the field, including transformations and products sale and always considering solidarity matters, social justice and sustainability (economic, social and environmental). The organization of the supply chain around collaborative processes stands out as an alternative for managing socio-environmental conflicts exposed throughout the chain's development. The detachment of private actors from the stages of environmental management of baru trees and from fruit harvest, as well as the role of the middleman and the rising competition among the actors in the baru supply chain, could have been putting at risk the chain's sustainability and competitiveness. Beyond that, the integration of the baru supply chain with other sociobiodiversity products chains in the Cerrado provides an opportunity for organizing farmer and producer associations, and assert relations (commercial and of collaboration) both inside the extractive category and between this category and the rest of the actors who establish the baru supply chain.

Research, communication and networking

The refinement in communication and dissemination of the baru supply chain, beginning with better information spread among all actors of the chain, was also pointed out as an essential aspect that would contribute to a better organization of commercialization circuits. In this subject, formalizing the relation between consumers and suppliers by creating solidarity-based economy networks presents an excellent opportunity for strengthening the supply chain. Another aspect related to the improvement of work conditions and better integration among the actors of the chain is that of the role of research in generating technological advancements, by institutional partnerships with NGOs, companies, high education institutes, research centers and local communities for working together in developing adapted technologies for production and management. Acting in favor of dissemination and promoting the agricultural and extractive industry of baru, beside the development of research in several areas, such as nutrition, processing, bioeconomy, technology, management and conservation, offer good opportunities of strengthening this supply chain.

The dismantling of Brazilian public policies towards family farming, food safety and protection of native ecosystems also show up as threats for the structuring of the baru supply chain. The support given by institutional arrangements together with regional development agencies, replicated in different producing regions as spaces for integration and gathering for celebrating the baru, establishes essential possibilities that allow extractivist workers to reach competitive conditions.

Certification

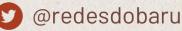
In addition to the aspects seen as essential to assisting in the construction of credibility and trust of products made of baru in the market, certification was stressed as a crucial point capable of contributing to differentiate baru products according to social and environmental practices of each production/commercialization circuit. Participative methods or processes of certification that include people who develop the extractive activity (those organized in cooperatives or not), that in theory would have more difficulty of entering the usual certification processes due to its price, methodology and bureaucracy, are identified in the interviews as indispensable for the success of any certification attempt. Those participative certification processes would also demand the development of partnerships between several known actors, such as NGOs, associations of cooperatives, international organizations, and universities, among others.





COLLABORATIVE NETWORKS: STRENGTHENING THE BARU PRODUCTIVE CHAIN

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