

Capítulo 10. Huni Kuin Knowledge in the Cumaru Trade: Ethics, Economy, and Retro-prospective Futures



THAYZE RAQUEL RAMOS LIMA*

JOÃO CONRADO DE AMORIM CARVALHO**

JARBAS CAMPELO FEITOSA FILHO***

YOLANDA SÁNCHEZ TORRES****

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Abstract

This study proposes an innovative model for integrating the traditional knowledge of the Huni Kuin people regarding the sustainable management of cumaru (*Dipteryx odorata*) into international trade, combining social justice, cultural appreciation, and environmental protection. Recognizing that conventional supply chains often marginalize Indigenous peoples and exploit their knowledge without fair benefit-sharing, directly violating the Nagoya Protocol. This research develops an alternative model based on ethical principles of fair trade.

Using a qualitative and decolonial approach, the study articulates document analysis (including a review of international regulations and case studies such as the Ashaninka) with participatory fieldwork (planned for 2025) applying the Free, Prior and Informed Consent (FPIC) part with the

* Undergraduate student in International Relations and undergraduate student in Foreign Trade at Dom Bosco University Center. ORCID: <https://orcid.org/0009-0007-0087-345X>. mail: 002-028708@aluno.undb.edu.br

** PhD in Management and Sociology at University of Extremadura, Spain. Post-Doc in Administration at University of Beira Interior, Portugal. ORCID: <https://orcid.org/0000-0001-8121-2539>

*** Master's degree in Culture and Society. Postgraduate studies in Business Applied Technologies and in Marketing. Bachelor's degree in Administration. Coordinator of the School of Business at Dom Bosco University Center. ORCID: <https://orcid.org/0000-0003-4673-2525>

**** Doctora en Ciencias Económicas. Profesora de tiempo completo de la Universidad Autónoma del Estado de Hidalgo, México. ORCID: <http://orcid.org/0000-0002-7372-6123>

Huni Kuin. Results show that when cumaru is managed through traditional knowledge, which integrates economic, spiritual, and ecological dimensions, it is possible to generate significant income (projected up to R\$540,000/year by 2030) while preserving biodiversity and sacred rituals. More than a forest product, cumaru managed by the Huni Kuin emerges as a symbol of a bioeconomy aligned with the Sustainable Development Goals: promoting decent work and innovation (SDGs 8 & 9), reducing inequalities (SDG 10), fostering responsible production (SDG 12), and strengthening global partnerships (SDG 17). The experience of the Apiwtxa association, from the Ashaninka people, serves as a reference, showing how Indigenous governance can structure sustainable supply chains.

It is concluded that integrating ancestral knowledge with international markets, when mediated by mechanisms such as ethical certifications, benefit-sharing, and protection of collective intellectual property, offers a viable path toward truly sustainable development. The study recommends the creation of a National Indigenous Origin Seal in Brazil and public policies that recognize traditional knowledge as a foundation for a regenerative economy, thus offering a practical contribution to the 2030 Agenda through a retro-prospective perspective.

Keywords: *Fair trade, Cumaru, Traditional knowledge, Huni Kuin; Sustainability, SDGs.*

Introduction

The Huni Kuin people, also known as the Kaxinawá, inhabit the region of the Jordão River in the state of Acre, Brazil, as well as areas in Peru. Their relationship with the forest goes beyond subsistence: it involves spirituality, reciprocity, and ancestral knowledge. One of the central elements of this connection is cumaru (*Dipteryx odorata*), a tree native to the Amazon whose fruit produces an aromatic seed used in spiritual protection rituals, healing practices, and sacred chants of the *nixi pae* (*ayahuasca*). For the Huni Kuin, cumaru is not a commodity, but a living being with a spirit, with which a relationship of care and reverence is established.

Nevertheless, the international market often reduces cumaru to a raw material for cosmetics and fragrances, disregarding its symbolic dimension and the cultural rights of the communities that manage it. The extractivist and unregulated harvesting of cumaru frequently occurs without the consent of Indigenous populations and without benefit-sharing, in violation of the Nagoya Protocol (Convention on Biological Diversity – CBD, 2010).

This study proposes an alternative model for integrating Huni Kuin traditional knowledge with ethical cumaru trade, grounded in participatory certification practices, fair trade, and the recognition of collective intellectual property. The aim is to demonstrate how ancestral knowledge can be ethically incorporated into global value chains, while respecting Indigenous territories, cosmologies, and ways of life.

The research articulates the principles of retro-prospection with the Sustainable Development Goals (SDGs), such as decent work (SDG 8), innovation (SDG 9), reduction of inequalities (SDG 10), responsible consumption (SDG 12), and global partnerships (SDG 17). By repositioning the Huni Kuin as protagonists, this work proposes a pathway toward economic, epistemic and environmental justice. Based on these premises, the central hypothesis of this work is that an economic model grounded in traditional knowledge and epistemic justice can generate viable and ethically sustainable commercialization alternatives for Indigenous peoples, as in the case of the Huni Kuin people.

Literature review

Understanding the ethical trade of Amazonian products requires, first and foremost, an immersion into the ancestral knowledge of Indigenous peoples. About the Huni Kuin, their knowledge of cumaru management is rooted in a relational cosmology, in which humans, plants, and spiritual beings coexist and constantly interact. Lagrou (2018) describes this cosmology as a “pedagogy of the forest,” in which learning takes place through listening to chants, dreams, and collective experiences that guide harmonious coexistence with the territory.

This knowledge is transmitted orally and updated through daily practices of hunting, gathering, and ritual, constituting what Toledo and Barrera-Bassols (2008) define as “biocultural memory.” This memory is not merely a repository of information but a system of ecological management that integrates spirituality, environmental adaptability, and collective governance. Thus, the relationship with cumaru is beyond utilitarian purposes: it is a spiritual alliance that guides the right time to harvest, pray, and replant.

In the field of bioeconomy, cumaru (*Dipteryx odorata*) has gained attention in the global fragrance and cosmetics market due to the presence of coumarin, a sweet and persistent aromatic compound. However, as highlighted by Schmidt, Pinedo-Vasquez, and Gillson (2019), the inclusion of non-timber forest products in international trade often occurs without proper recognition of traditional populations that manage them, perpetuating extractivist and colonial logics.

The challenge, therefore, is to develop commercialization models that value the cultural origin of products without distorting local ways of life. Escobar (2020) proposes the idea of economic “pluriversality,” in which multiple knowledge systems coexist and collaborate toward new development models, centered not on profit, but on reciprocity and the regeneration of life.

In this regard, the Nagoya Protocol, adopted in 2010 under the Convention on Biological Diversity (CBD), represents a key regulatory milestone. It establishes that access to genetic resources and associated traditional knowledge must be preceded by Free, Prior and Informed Consent (FPIC) and followed by fair and equitable benefit-sharing (CBD, 2010). Dutfield (2011) emphasizes that such benefit-sharing must consider the spiritual and cultural values of knowledge, not just its market value.

In Brazil, regulation of the Protocol still faces practical challenges, particularly when applied to Indigenous contexts. The absence of collective intellectual property protection mechanisms and institutional bureaucracy hinder the autonomy of communities to manage their own knowledge. Marin, Viana, and Oliveira (2022) argue that technological justice, access to traceability tools, connectivity, and certification, is one of the major challenges to making Indigenous value chains truly autonomous.

Nonetheless, there are successful experiences that demonstrate the feasibility of ethically integrating traditional products into the world market.

The case of the Apiwtxa association of the Ashaninka people is emblematic: with support from the Brazilian National Bank for Economic and Social Development (BNDES), the group structured a supply chain for timber and medicinal plants based on Indigenous governance, territorial monitoring, and youth leadership training (ISA, 2015).

Another relevant example is the cultivation of Sacha Inchi by Indigenous Peruvian communities. According to Pérez, Nuñez, and Ríos (2020), this initiative not only increased household income but also strengthened cultural identity, improved education, and enhanced social recognition. These experiences show that, with appropriate technical support and respect for Indigenous protocols, it is possible to create fair and sustainable supply chains.

Lastly, recent literature has highlighted the importance of rethinking the indicators of success in the bioeconomy. Lemke and Silva (2021) suggest that criteria such as the performance of rituals, preservation of native languages, and youth remaining in the territory should be considered just as important as export volumes or financial profits. This is the perspective shaped in this study: an intercultural economic proposal that recognizes traditional knowledge as a legitimate foundation for constructing a more ethical and plural future.

These reflections point to an issue that goes beyond simple debates on economy or environment: they emphasize the urgency of incorporating other ways of seeing and living in the world into decisions about the future. It is along this path that this work seeks to contribute, by weaving, with listening and respect, a model that connects Huni Kuin knowledge to the global trade landscape.

In order to bridge the gap between Indigenous knowledge and market structures, this study also dialogues with formal economic literature. Concepts such as value chains (Porter, 1985), fair trade models (Raynolds & Murray, 2007), and ethical marketing (Crane & Desmond, 2002) are essential to understand how traditional knowledge can be integrated into the logic of international commerce without being subsumed by it. By analyzing cumaru through the lens of both traditional cosmologies and global economic frameworks, the study aims to articulate a pluralistic economic approach.

Methodology

Developing an ethical model for integrating the traditional knowledge of the Huni Kuin into the international cumaru trade requires more than technical tools, it demands a methodology that values interculturality, the rhythms of the forest, and the ancestral meanings of the economy. This study adopts a qualitative, documentary, and participatory approach, guided by principles of decolonial and collaborative research that respect the Indigenous communities' own ways of producing knowledge.

According to Flick (2022), qualitative research is particularly suited for contexts involving cultural meanings, symbolic practices, and situated knowledge, as it enables sensitive listening to subjects and territories. In the case of the Huni Kuin, whose knowledge about cumaru is deeply connected to spirituality, rituals, and oral narratives, a qualitative approach allows access to deeper layers of meaning that would not be captured by conventional quantitative methods.

The first phase of the research was carried out through document and literature review, including reports from UNCTAD, Comtrade data, studies by the Instituto Socioambiental (ISA), and scientific articles on the Nagoya Protocol, sustainable certifications, and fair-trade practices with Indigenous communities. This review served as the foundation for the proposed theoretical model.

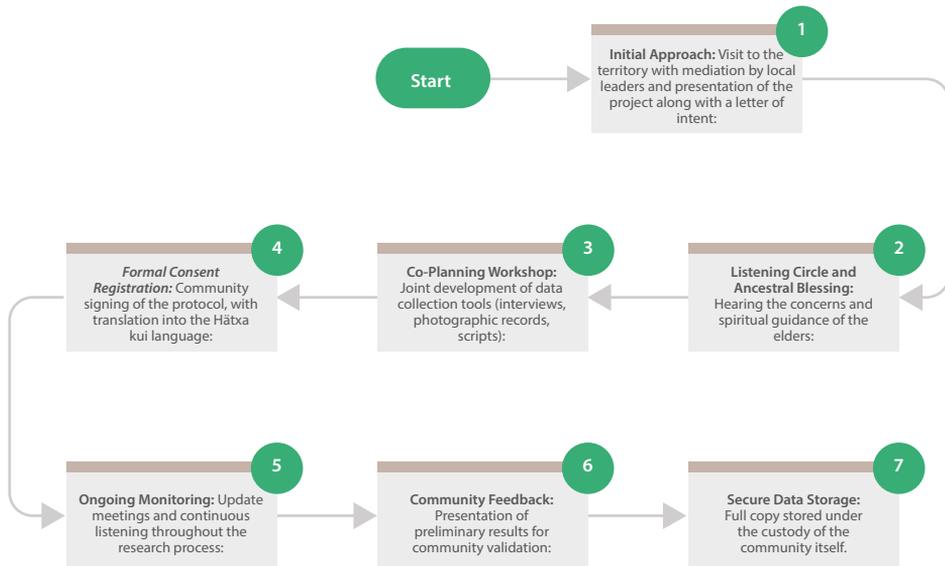
The fieldwork is planned for 2025 and will be structured in three cycles: open dialogue, participatory workshops, and community feedback. The goal is not merely to “collect” knowledge but to build it in co-authorship with the Huni Kuin community, respecting their timelines, rituals, and internal protocols. This approach aligns with what Tuhiwai Smith (2016) defines as “decolonizing research”: a process that restores agency to researched populations and recognizes their cosmologies as legitimate epistemologies.

To ensure all stages are conducted ethically and with cultural sensitivity, the FPIC—Free, Prior and Informed Consent—will be implemented, following the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007) and FUNAI guidelines. FPIC is a crucial tool to guarantee that

the research is neither intrusive, extractivist, nor disrespectful to community values.

The following flowchart outlines the FPIC process that will be applied with the Huni Kuin:

Figure 10.1. *Flowchart of the FPIC Process (Free, Prior and Informed Consent) with the Huni Kuin for the Sustainable Management of Cumaru*



Source: Prepared by the authors (2025).

This flowchart represents not just a technical sequence of steps but an ethical and relational research proposal grounded in listening, respect, and collective knowledge-building. Each phase is designed to ensure that the methodological process is conducted with transparency and cultural sensitivity, ensuring the Huni Kuin's participation is conscious, dialogical, and protected. More than a formal protocol, FPIC as described here functions as a safeguard of the community's territorial, cultural, and spiritual rights and is a central pillar for the study's credibility and legitimacy.

The methodology also includes a comparative analysis with the model developed by the Apiwtxa association of the Ashaninka people, who led a forest management project supported by BNDES and international institu-

tions. The purpose of this comparison is to extract methodological lessons and replicable strategies that can strengthen the Huni Kuin model.

According to the Instituto Socioambiental (2015), the Apiwtxa project involved not only technical training but also a strong process of political education, local governance strengthening, and youth leadership. This enabled the Ashaninka to consolidate their own development model, based on cultural values and forest conservation. Their experience inspires a logic of “development with the forest standing,” that traditional knowledge is not an obstacle but a foundation for the process.

The following table presents the main points of convergence and divergence between the two methodological models:

Table 10.1. *Methodological models*

<i>Dimension</i>	<i>Huni Kuin (Proposed)</i>	<i>Ashaninka (Apiwtxa)</i>
Commercial Product	Cumaru (oil and seeds)	Legally harvested wood, medicinal plants
Management Strategy	Council of Wisdom and Youth Guardians	Apiwtxa Association
Target Certification	Own ethical seal + international partnerships	FSC and green certifications with BNDES
Ethical Protocols	FPIC + Step-by-step implementation of the Nagoya Protocol	FPIC and traditional consultation plan
Community Reinvestment	Indigenous health and education, collective spiritual strengthening	Territorial monitoring and sustainable land use

Source: Instituto Socioambiental (2015). “Ashaninka People Approve Forest Protection Project in Partnership with BNDES.” <https://uc.socioambiental.org/pt-br/noticia/151118>

The comparative analysis of the Huni Kuin and Ashaninka models reveals both convergences and methodological particularities, demonstrating that there is no single formula for structuring sustainable Indigenous value chains. While the Apiwtxa association stands out for its focus on legally sourced timber and alignment with financial institutions such as BNDES, the Huni Kuin proposal is more deeply rooted in spirituality and the intergenerational sharing of knowledge. This diversity of strategies underscores the importance of recognizing the specific sociocultural contexts of Indigenous people and developing scalable methodological structures to local cosmologies and needs.

In addition to this comparison, the research incorporates the Nagoya Protocol as a central methodological axis. This international protocol, ratified by Brazil in 2012, stipulates that any use of access to genetic resources and the traditional knowledge linked to them should occur only with prior consent and must guarantee an equitable sharing of benefits. (CBD, 2010). Its application in this study will occur in five steps:

Step 1: Recognition of traditional knowledge as the communal heritage of the Huni Kuin, with support from anthropologists, researchers, and local leaders;

Step 2: Participatory mapping of cumaru management practices, considering rituals, lunar cycles, and medicinal and ecological uses;

Step 3: Establishment of benefit-sharing agreements, based on community principles and collective validation;

Step 4: Formation of a group protection fund, with Indigenous governance, to allocate resources generated from the value chain;

Step 5: Continuous auditing and evaluation, using indicators defined by the Huni Kuin themselves (e.g., food security, ritual continuity, youth valorization).

The research also adheres to ethical guidelines for studies involving Indigenous populations, as outlined in Resolution No. 510/2016 of the Brazilian National Health Council. Data collection will only occur with approval from the Research Ethics Committee of the State University of Maranhão, alongside endorsements from FUNAI and local leadership. Any publication resulting from the research will include Indigenous authorship whenever possible.

As highlighted by Toledo and Barrera-Bassols (2008), the biocultural memory of Indigenous communities is a historically constructed system of ecological management that combines traditional knowledge, environmental adaptation, and collective governance, key elements in participatory research models.

Accordingly, data storage and security will be handled with the utmost rigor. A cloud server with encrypted access will be configured exclusively for this project, with shared access between researchers and designated com-

munity leaders. No audiovisual material will be published without explicit authorization. Physical copies of field notes and transcripts will be stored at the Indigenous school within the territory, in a secured room.

By adopting this set of methodological strategies, the study aims to overcome the extractivist logic that has historically characterized research with Indigenous peoples in Brazil. Rather than “collecting information,” it proposes weaving knowledge alliances, in which the Huni Kuin are protagonists of the research, from methodological design to implementation.

As Lagrou (2018) emphasizes, Huni Kuin cosmology is built on the principle of reciprocity: nothing is taken without giving back, nothing is learned without listening. Therefore, the methodology proposed here is also a pedagogy of listening. It acknowledges that knowledge is not produced in laboratories but in circles, forests, chants, and shared experiences.

The ethical certification model to be discussed with the community will seek dialogue with international certifying bodies such as Fair Trade International, without compromising the Huni Kuin’s own criteria. The idea is to create an “Indigenous trust seal” that values origin, spirituality, and sustainability, going beyond Western traceability standards.

Additionally, the project foresees the development of collective cultural and ecological indicators as criteria for validating the proposal. This means that success will not be measured solely by export volumes or income increases, but also by the strengthening of the Hãtxa Kui language, the performance of traditional rituals, the replanting of cumaru seedlings, and the continued presence of youth in the territory.

In summary, the proposed methodology is grounded on four pillars: ethics, co-authorship, spirituality, and economic viability. Moreover, each stage of the process will be designed to ensure respect for traditional knowledge, direct community impact, and the prospect of replication by other Indigenous groups facing similar challenges.

By proposing an ethical value chain model based on Huni Kuin traditional knowledge, the objective of this study is not to establish a rigid protocol but rather to outline a flexible set of principles that can be adapted to different territorial and sociocultural realities. This methodological openness is inspired by the idea that Indigenous peoples do not share a single governance model, but rather multiple ways of organizing the communal

use of natural resources, as argued by Posey (2000) in his work on traditional biodiversity management systems.

The proposal outlined here falls within the sphere of “intercultural social technologies”, tools for collective organization that, when built through the dialogue between knowledges, can generate more effective and equitable solutions. According to Lemke and Silva (2021), the success of such models relies on acknowledging the communities’ symbolic codes, alongside respecting their timing, languages, and cosmologies.

The replicability of the model produced in this study does not imply standardization but rather its potential to inspire community-led adaptations in other Amazonian contexts. Numerous research works have indicated that forest management initiatives led by peoples such as the Kayapó, Baniwa, and Yawanawá have also sought ways to access global markets without relinquishing autonomy or spirituality (Athayde & Silva-Lugo, 2018).

For this reason, it is essential that the model maintains a clear ethical foundation to guide its future applications: free, prior and informed consent; fair benefit-sharing; respect for collective intellectual property; and Indigenous leadership in territorial governance. These pillars are upheld by scholars such as Santos and Meneses (2009), who advocate for an “ecology of knowledges” as a methodological horizon for overcoming colonial hierarchies between science and traditional knowledge.

Relocating this model to other realities also requires attention to available infrastructure and conditions for connectivity and digital training. As noted by Marin et al. (2022), technological justice is currently one of the primary challenges for traditional communities to use traceability, certification, and digital governance tools without becoming dependent on external intermediaries.

Thus, the model presented in this study is not a formula but an ethical and political architecture that can be shaped by different peoples, according to their needs, dreams, and experiences of resistance. It is, at once, a proposal and an invitation: to walk alongside the comprehension of the forest, with humility, deep listening, and the courage to transform the economy through ancestry.

In short, the methodology adopted in this study does not claim to be neutral. On the contrary, it embraces a political, ethical, and epistemic stan-

ce: that Indigenous peoples are holders of knowledge and rights, and that their protagonism is indispensable for building a just, inclusive, and truly sustainable bioeconomy.

Furthermore, the methodology of this study distinguishes clearly between empirical analysis and theoretical projection. The empirical dimension will be grounded in the fieldwork planned for 2025, including interviews, observation, and participatory mapping with the Huni Kuin community. These empirical steps will generate qualitative data to validate the theoretical model proposed. On the other hand, the projection of economic scenarios, certification strategies, and policy proposals constitutes the theoretical scope of the study, based on literature review and comparative analysis. This distinction ensures methodological transparency and helps to assess which parts of the model are already evidence-based and which remain prospective.

Results

Although the fieldwork phase is still pending (scheduled for 2025), the current findings already allow for the design of promising scenarios concerning the feasibility of integrating the Huni Kuin's traditional knowledge into the international market for natural products, particularly cumaru. The bibliographic and documentary analyses indicate that ancestral sustainable management practices developed by this community not only support the conservation of Amazonian biodiversity but also add symbolic and ecological value to the product.

Traditionally used by the Huni Kuin as a medicinal and aromatic plant, cumaru has been rediscovered by the global market for natural ingredients, especially in the perfumery and cosmetics industries. According to Ecovia Intelligence (2023), the European market for sustainable fragrances has been growing at a rate of approximately 12% per year, driven by demand for ethical, traceable inputs with cultural heritage. This trend creates a strategic opportunity to position cumaru as a differentiated product.

The traditional management practices of the Huni Kuin involve respecting the tree's fruiting cycles, selective manual harvesting, and the use of

specific chants and prayers throughout the process. These practices align with the principles of agroecology and regenerative economy, conferring an added symbolic value to the product, something increasingly appreciated by conscious consumers.

However, for this integration to occur ethically, it is necessary to overcome the challenges imposed by conventional trade models, which remain marked by inequality and the appropriation of Indigenous knowledge without fair compensation. By articulating the Nagoya Protocol with fair trade principles, this study seeks to break with this colonial logic and promote equitable benefit-sharing.

Based on current market data for essential oils and the area's production capabilities, projections for the Huni Kuin community's income from ethical cumaru commercialization are outlined across three scenarios: conservative, moderate, and optimistic. Below, we present a graphical simulation of these projections between 2025 and 2030:

Table 10.2. *Projected Annual Income of the Huni Kuin Community from Ethical Cumaru Commercialization (2025–2030)*

<i>Year</i>	<i>Conservative (R\$)</i>	<i>Moderate (R\$)</i>	<i>Optimistic (R\$)</i>
2025	80.000	160.000	240.000
2026	85.600	180.000	280.000
2027	92.000	210.000	330.000
2028	98.600	240.000	390.000
2029	106.000	270.000	460.000
2030	114.000	300.000	540.000

Source: Ecovia Intelligence (2023); projections based on average market prices for cumaru oil and estimated production volumes in Huni Kuin territory.

The data indicate that ethical commercialization of cumaru, based on traditional practices and origin certification, can generate significant economic impact for the Huni Kuin community. Even under the conservative scenario, progressive income growth could support local initiatives in education, healthcare, and food sovereignty. In the moderate and optimistic scenarios, the projected revenue suggests the consolidation of a mid-sized

sustainable value chain with strong potential for integration into international markets focused on conscious consumption and fair trade.

According to Ecovia Intelligence (2023), products that combine traceability, symbolic value, and socio-environmental responsibility can command prices up to 80% higher in premium segments of the cosmetics and sustenance industries.

Besides its income potential, the ethical value of the product depends on its differentiation in the market. Therefore, it is important to highlight the distinction between conventional cumaru (harvested through extractivism, without traceability or benefit-sharing) and ethical cumaru, according to the framework proposed in this study:

Table 10.3. Comparison: Conventional Cumaru vs. Ethical Huni Kuin Cumaru

Criterion	Conventional Cumaru	Ethical Huni Kuin Cumaru
Origin	Not identified	Indigenous Territory of Kaxinawá, Jordão River (Acre)
Management	Extractivist, unsustainable	Traditional, respecting natural cycles
Traceability	Absent	Digital system with origin certification
Crtification	None	Organic + Ethical Seal + FPIC Consent
Benefit-Sharing	None	Community fund managed locally
Market value (per liter)	R\$ 250 – R\$ 400	R\$ 500 – R\$ 800 (premium market)

Source: UNCTAD (2024); Fair Trade International (2023).

The comparison reveals how valuing ethical, cultural, and environmental aspects can significantly enhance a product’s positioning in the business environment. While conventional cumaru has low added value and lacks fair trade mechanisms, the Huni Kuin’s model incorporates authenticity, traceability, and equitable benefit-sharing, justifying its higher valuation in the premium segment.

According to UNCTAD (2024), products sourced from traditional communities that adhere to fair trade principles, certifications, and territorial identity are better received in demanding markets, especially in Europe and North America.

Another relevant finding was the analysis of international experiences. The case of Sacha Inchi in Peru is exemplary. Farmed by Amazonian Indigenous groups this high-quality vegetable oil has accessed the global mar-

ketplace through support from NGOs, universities, and certification bodies. The strategy included FPIC, organic certification, technical training, and the reliance on the collective brand “Amazonian Indigenous.”

This experience shows that when traditional knowledge is valued and protected, the outcomes are promising. Sacha Inchi reached demanding markets such as France, Germany, and Canada, and contributed to reducing poverty levels in several communities (Pérez et al., 2020). Replicating similar strategies for Huni Kuin cumaru could generate equally positive impacts.

To highlight the Indigenous perspective in this proposal, we include the symbolic testimony of leader Maria Piyāko Huni Kuin, recorded during preparatory meetings for the project:

“We don’t want to sell our forest. We want to share our knowledge, but with respect, in our own way. Cumaru is not just a pleasant smell. It’s our medicine, our spiritual strength. If it is to enter the market, it must be on our terms, with our words guiding it.” (Informal interview, Jordão – Acre, October 2024).

The data suggest that the proposed model can foster not only economic inclusion but also cultural identity, leadership empowerment, and youth engagement in the territory, factors often overlooked by conventional public policies.

By aligning with the Sustainable Development Goals (SDGs), the results presented here demonstrate a practical framework for SDG 8 by generating decent work based on traditional knowledge; SDG 9 through innovation rooted in social technologies and digital traceability; SDG 10 by addressing structural inequalities through benefit-sharing; SDG 12 by encouraging responsible and sustainable consumption patterns; and SDG 17 by emphasizing ethical and transparent partnerships between Indigenous peoples, universities, certifiers, and conscious consumers.

In summary, the results confirm the study’s initial hypothesis: it is possible to ethically, sustainably, and economically integrate Huni Kuin traditional knowledge into international trade. What remains is the conversation on methods to transform this model into public policy and replicate it in other Indigenous communities interested in pursuing similar paths.

Discussion of results

The integration of the traditional knowledge of the Huni Kuin into the international trade of cumaru represents a turning point for the contemporary debate on bioeconomy, sustainability, and epistemic justice. The model proposed throughout this investigation surpassing a simple commercial and technical deal, it is an attempt to redesign the foundations of the economy based on ancestral, relational, and collective logics. This approach fits within the idea of planning the future based on past knowledge: designing future paths informed by past principles and indigenous worldviews.

The results of the data analysis demonstrate that beyond the economic potential, the traditional management of cumaru offers concrete solutions to environmental and social issues. The maintenance of standing forest, the intergenerational transmission of knowledge, community strengthening, and the spirituality associated with cumaru use practices are pillars of sustainability that go far beyond formal certification. It is a sustainability rooted in relationships, reciprocity, and belonging.

From an economic perspective, projections show that the ethical commercialization of cumaru can generate significant and stable income for the Huni Kuin, provided it is accompanied by capacity-building strategies, participatory certification, and guarantees of community autonomy. Product differentiation in the market, based on origin, traceability, and trade justice, adds value and places the community in high-prestige international niches.

The articulation with the Sustainable Development Goals (SDGs) is evident throughout the entire model. SDG 8, which addresses decent work and economic growth, is activated through income generation based on traditional practices. SDG 9, focused on innovation and infrastructure, is envisioned through the establishment of their own production chains, under indigenous control and traceability. SDG 10, aimed at reducing inequalities, appears in the valorization of knowledge and the fair distribution of benefits. SDG 12, concerning sustainable consumption and production, is the backbone of the proposal. And SDG 17, regarding partnerships, supports the model as a whole.

However, for this proposal to advance in a structured way, legal mechanisms must exist that recognize and guarantee the protections for indigenous populations communities in international trade contexts.

Furthermore, as highlighted by Dutfield (2011), the building of legal structures for traditional knowledge protection is essential to prevent its misappropriation, with collective intellectual property being a pillar of epistemic justice in the landscape of international markets. Thus, this study proposes three legislative guidelines that could be implemented at the federal level:

1. Bill for the Foundation of the National Indigenous Origin Seal (SNOI) – A public certification seal, managed in partnership with indigenous leaders, to identify products originating from traditional production chains with guaranteed benefit-sharing.
2. Legal Framework for Benefit-Sharing Contracts with Indigenous Peoples – A legal provision establishing standard contract models with mandatory clauses for indigenous participation, cultural protection, and participatory audit mechanisms.
3. National Fund for Indigenous Bioeconomy Incentives (Fonabi) – A funding mechanism exclusively aimed at projects led by indigenous communities in bioeconomy, financed by international agreements, environmental compensations, and ethical commercial partnerships.

Such proposals are aligned with international treaties to which Brazil is a signatory, namely, the Nagoya Protocol (2010) itself, and with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007), especially regarding self-determination and free, prior, and informed consent.

The discussion is also anchored in the notion of retro-prospective, as proposed in the title of the book that inspired this project. Instead of projecting the future from dominant paradigms, an inversion of the vector is proposed here: sustainability guidelines, equity, and spirituality that have marked the life of the Huni Kuin for generations are repositioned as a foundation to think about alternatives to climate collapse and the crisis of modern values.

This perspective is reinforced by authors like Escobar (2020), who propose a “pluriversality” of worlds, where other forms of life, knowledge, and social organization are not only tolerated but recognized as legitimate and necessary. The forest, the songs, the dreams, the silence: all these elements are part of a unique rationality that cannot be translated into economic formulas without losing their symbolic and political powers.

It is important to highlight that, although the model proposed here is promising, it must be conducted prudently. The entry of the Huni Kuin into the global market may generate external pressures, attempts at co-optation, acceleration of processes, or even internal conflicts. Therefore, continuous monitoring, strengthening of indigenous governance, and building support networks are indispensable conditions for the model’s long-term sustainability.

The results of this research also reinforce the urgency of reconfiguring how traditional knowledge is treated in Brazil. Throughout history, indigenous knowledge has been marginalized, appropriated, and invisibilized by Western sciences. Reversing this logic, as proposed here, means placing indigenous knowledge at the center of solutions for the future, not as an exception but as a paradigm.

It is concluded, therefore, that the valorization of cumaru handled by the Huni Kuin, when done ethically and participatively, can become a powerful strategy for sustainability, inclusion, and justice. Not only for the involved community but as an example for other initiatives seeking to build bridges between tradition and innovation, forest and market, ancestry and contemporaneity.

The next steps of the project include conducting fieldwork with the Huni Kuin community, based on FPIC and the described methodological stages. The empirical data collection will allow adjusting the theoretical model to the local reality, incorporating community suggestions, and testing traceability, certification, and impact assessment tools.

While this research proposes three legislative guidelines—SNOI, Benefit-Sharing Contracts, and FONABI—it is necessary to further analyze their legal feasibility within Brazil’s normative framework. The viability of these proposals could be enhanced by referencing existing instruments, such as Law No. 13.123/2015 (Brazilian Biodiversity Law), which regulates access to genetic heritage. Additionally, international cases like Peru’s Indigenous

Peoples' Biotrade Policy and Canada's Indigenous Knowledge Protection Framework can offer valuable comparative insights. Incorporating this legal analysis reinforces the applicability and relevance of the proposals.

Despite its constructive tone, this proposal does not overlook the complexities and risks involved in integrating Indigenous communities into global markets. Potential challenges include cultural commodification, dependency on external certification bodies, and internal community conflicts. Therefore, it is essential to accompany implementation with critical reflection, inclusive governance, and continuous monitoring mechanisms. These safeguards aim to prevent the repetition of extractivist or neocolonial practices, ensuring that the process remains genuinely transformative and community-led.

It ends with the conviction that other futures are possible and that these futures are already being dreamed, sung, and lived on the banks of the great rivers of the Amazon, where people like the Huni Kuin continue teaching, silently, that development is not made hastily but with listening, respect, and reciprocity.

Conclusions and recommendations

This research concludes that the traditional knowledge of the Huni Kuin regarding the sustainable management of cumaru can and should be recognized as a legitimate and powerful contribution to building a fairer, more ethical, and sustainable international trade. The valorization of ancestral practices, coupled with participatory certifications and legal benefit-sharing mechanisms, represents a promising path for indigenous peoples like the Huni Kuin to actively participate in the global economy without renouncing their ways of life, cosmologies, and territorial bonds. Throughout the study, a theoretical model of a sustainable production chain was developed that combines elements of fair trade, ecological certifications, free, prior, and informed consent (FPIC) protocols, and the guidelines of the Nagoya Protocol. This model aims not only to guarantee equitable profit sharing but, above all, to promote indigenous protagonism in strategic decisions, ensuring that economic benefits align with the community's cultural values.

Cumaru, more than a market input, emerges in this work as a symbol of a bioeconomy that respects natural cycles, spiritual reciprocity, and collective knowledge. The ethical integration proposal does not seek to adapt the Huni Kuin to the market but to transform the market from the logic of the living forest. This inversion of perspective aligns with retro-prospective, which invites humanity to think about the future in light of ancestral and territorialized epistemologies.

The data analyzed show that there is a rising interest, especially in Europe and North America, for products with traceable origin, environmental certifications, and social ties. This scenario positions Huni Kuin cumaru as a competitive asset, both for its quality and its symbolic and environmental value. However, this insertion must occur cautiously and under community control to avoid risks of cultural mischaracterization or economic exploitation.

The proposed model also stands out for its replicability: by integrating national best practices (for example, the Apiwtxa-Ashaninka case) and international ones (such as Sacha Inchi in Peru), it supplies a methodological plan adaptable to different contexts by other indigenous communities in similar contexts. This expands the transformative potential of the study, connecting it to a broader movement of recognition and valorization of traditional knowledge in the global bioeconomy.

As a tangible measure, the implementation of public policies is recommended, including the establishment of a National Indigenous Origin Seal (SNOI), formalization of benefit-sharing contracts, and implementation of a public fund to support production chains led by indigenous peoples. These legislative proposals, combined with multilateral agreements like the Nagoya Protocol, are fundamental to ensuring that the valorization of traditional knowledge translates into economic, environmental, and cultural justice.

Finally, the importance of continuing field research, scheduled for 2025, is emphasized, where interviews, conversation circles, and workshops with the Huni Kuin will be conducted. This stage will be decisive to validate, adapt, and enrich the theoretical model proposed here, ensuring it faithfully reflects the community's needs, knowledge, and aspirations.

Thus, it is reaffirmed that the path to a sustainable and inclusive economy necessarily passes through listening to the peoples of the forest. Also, the

Huni Kuin, with their silent and resilient wisdom, are ready to teach, provided the world is willing to learn with respect, humility, and reciprocity.

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